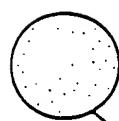
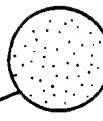


FIG. 1



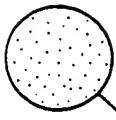
[SEQ. ID NO: 3]

X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C
5' 3'

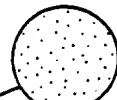


G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X
3' 5'

[SEQ. ID NO: 4]



X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C



G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X

FIG. 2

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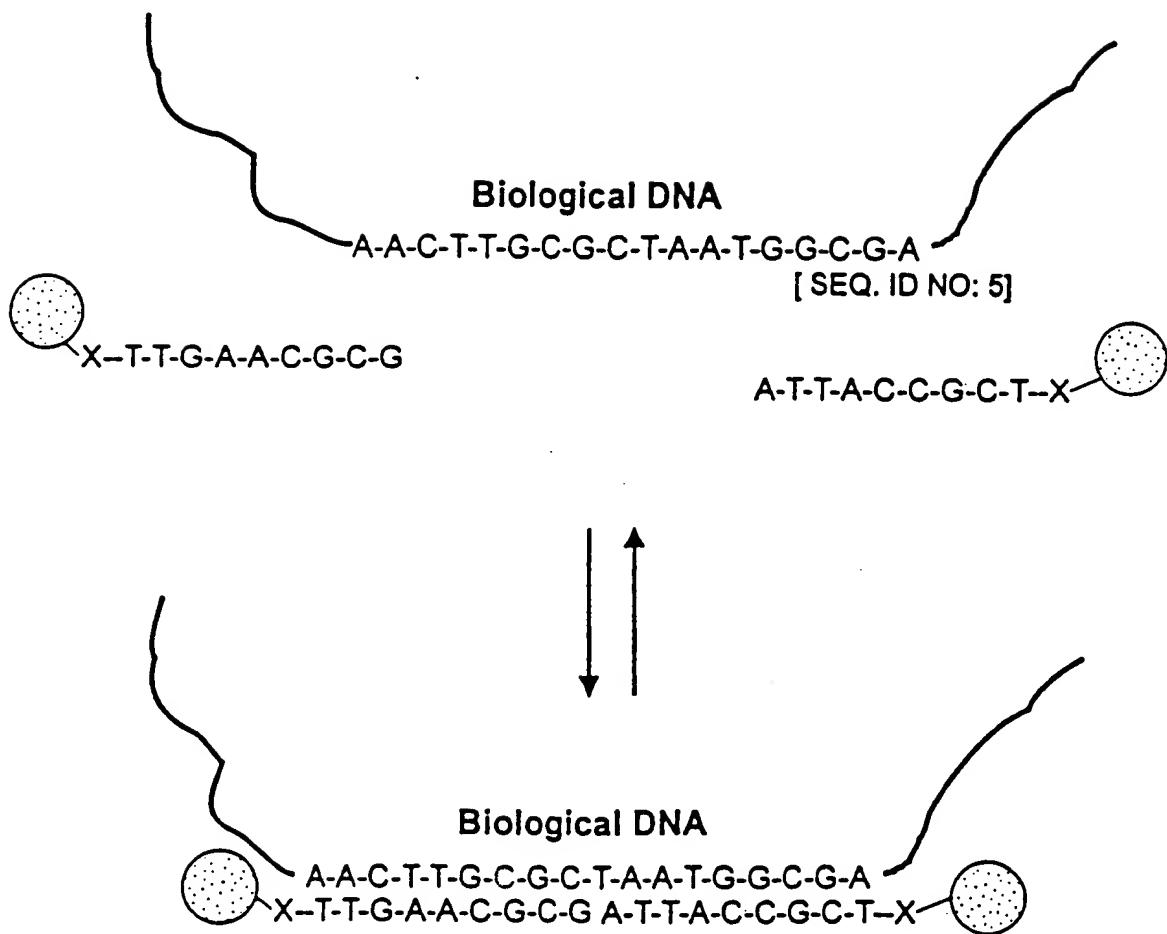
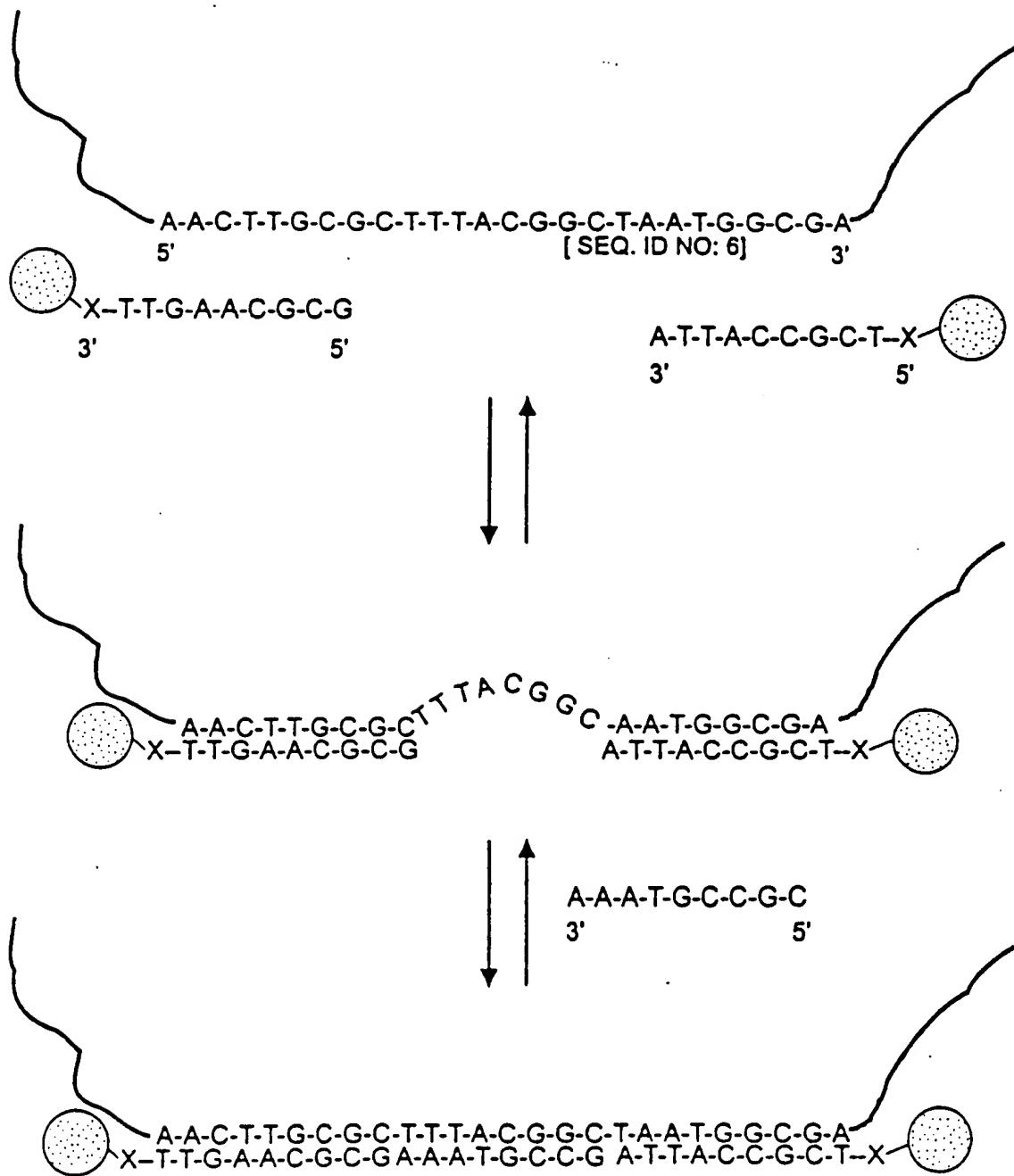


FIG. 3



卷之三

FIG. 4

5' A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-G-C-T-A-G
 3' (SEQ. ID NO: 2) ↗
 5' A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A
 3' (SEQ. ID NO:1) ↗

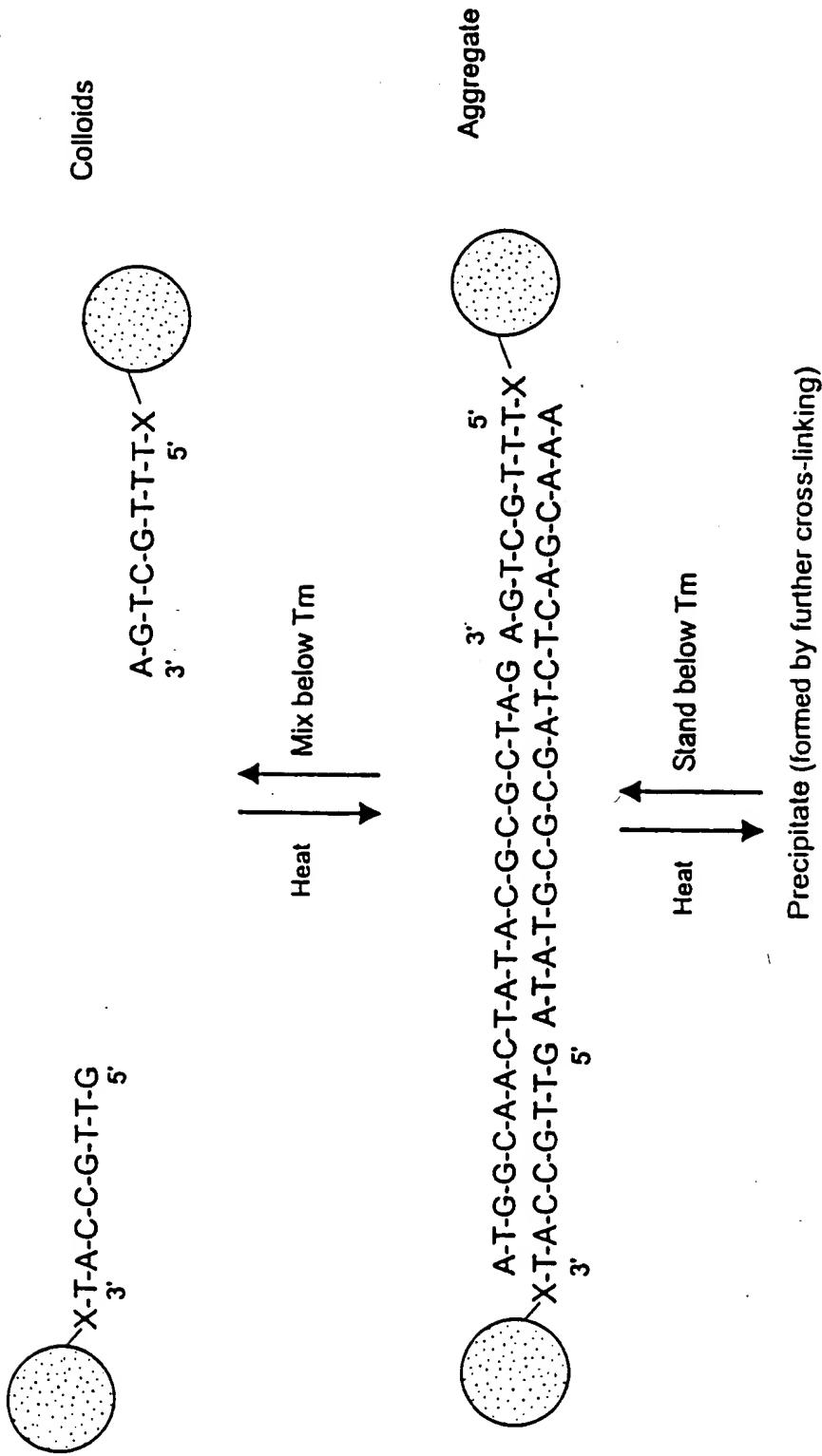


FIG.5

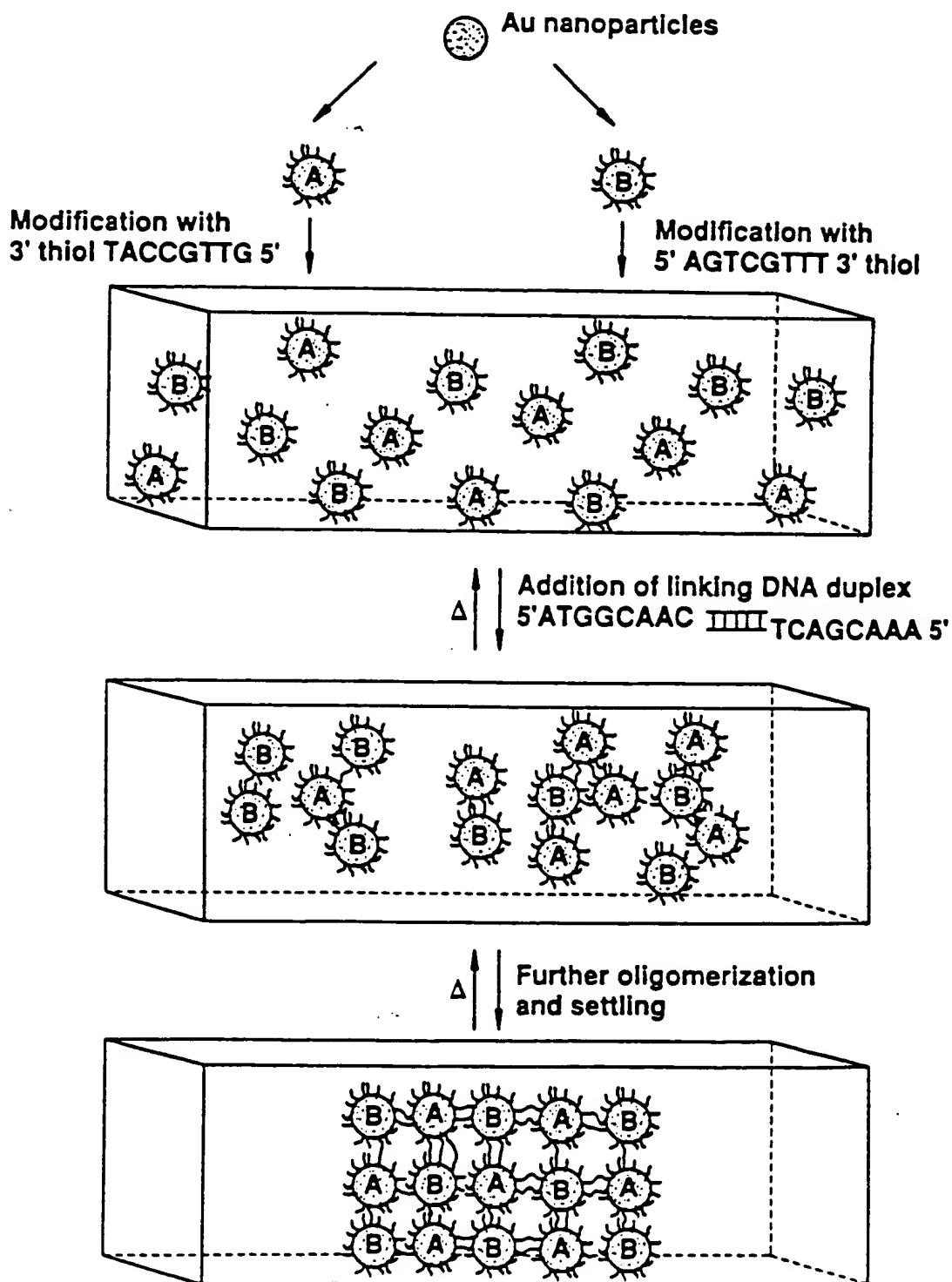




FIG.6A FIG.6B FIG.6C

FIG. 7

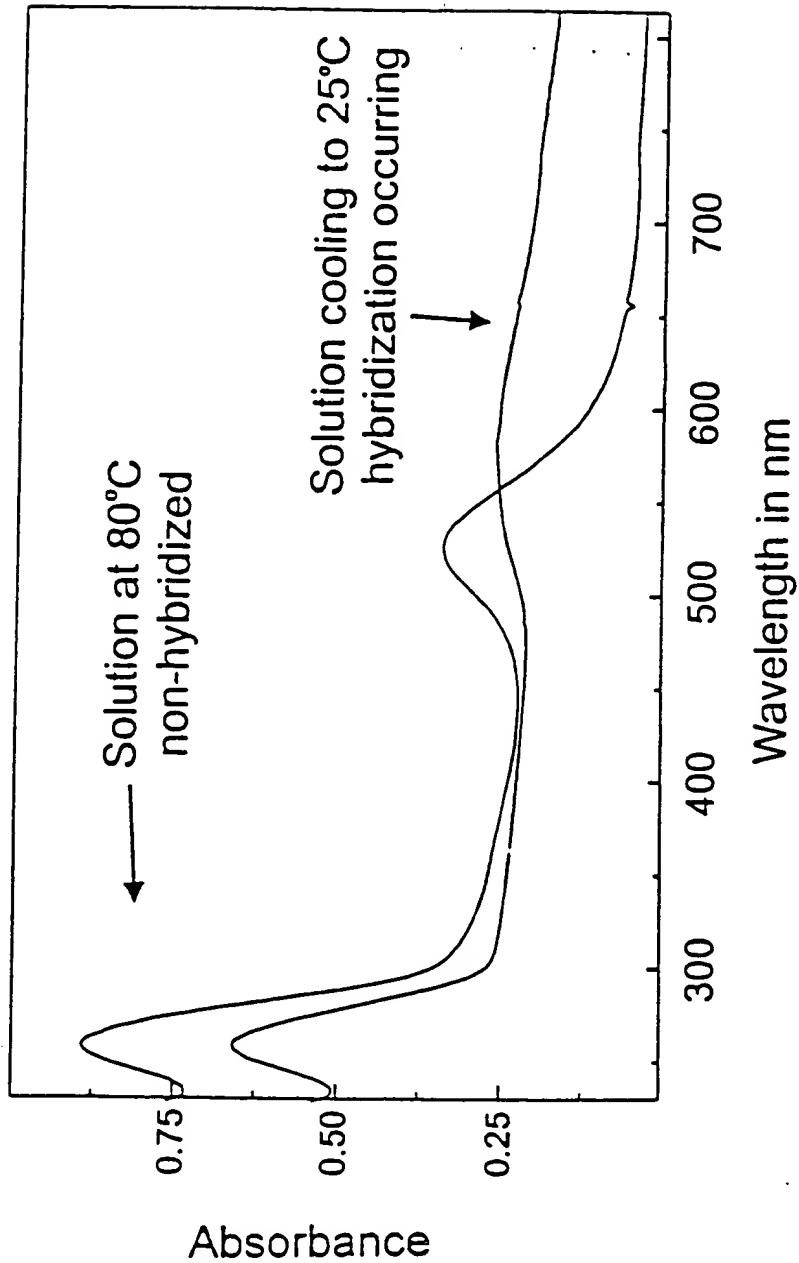


FIG. 8A

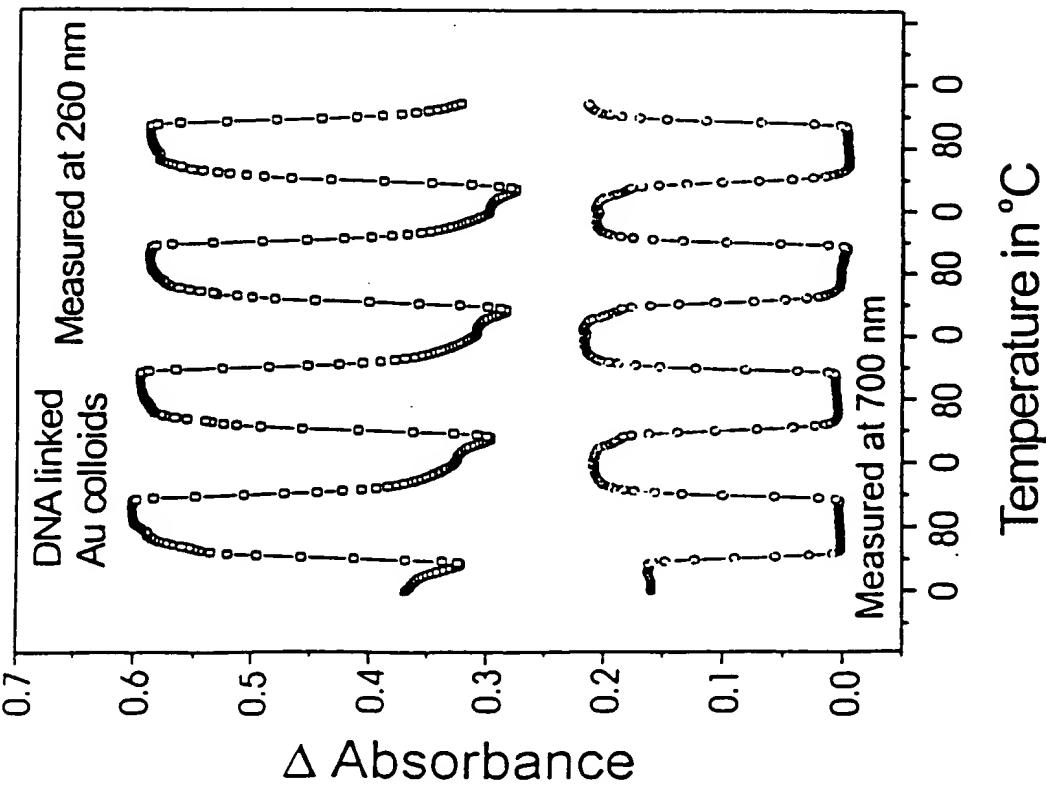
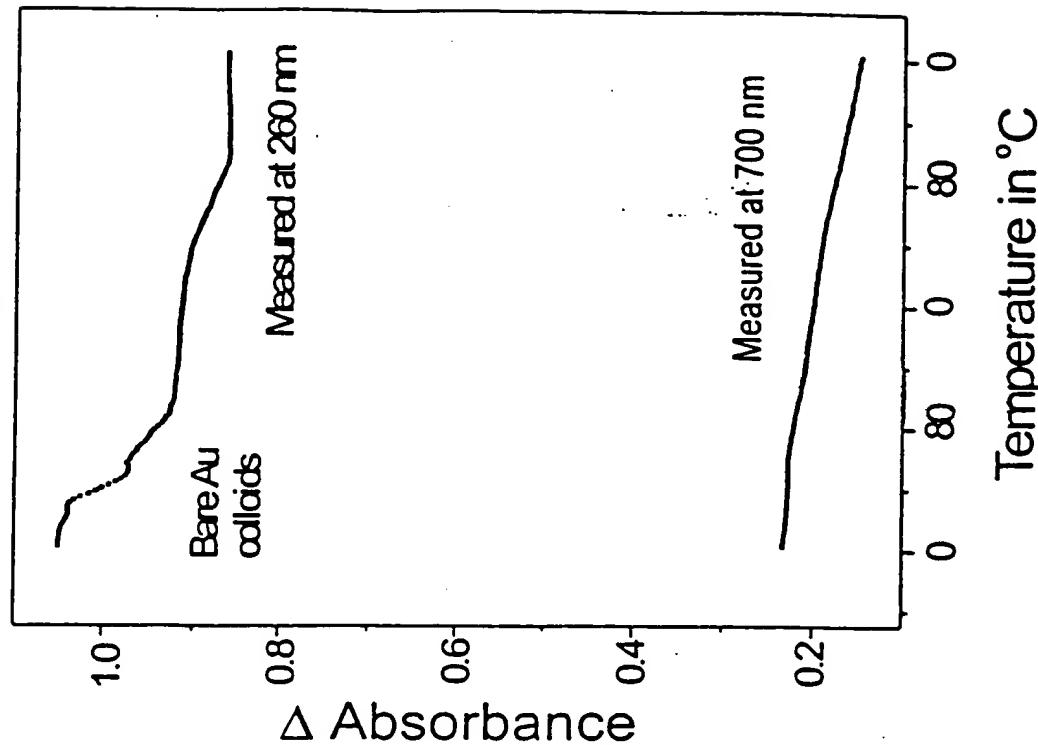


FIG. 8B



卷之三



FIG. 9A

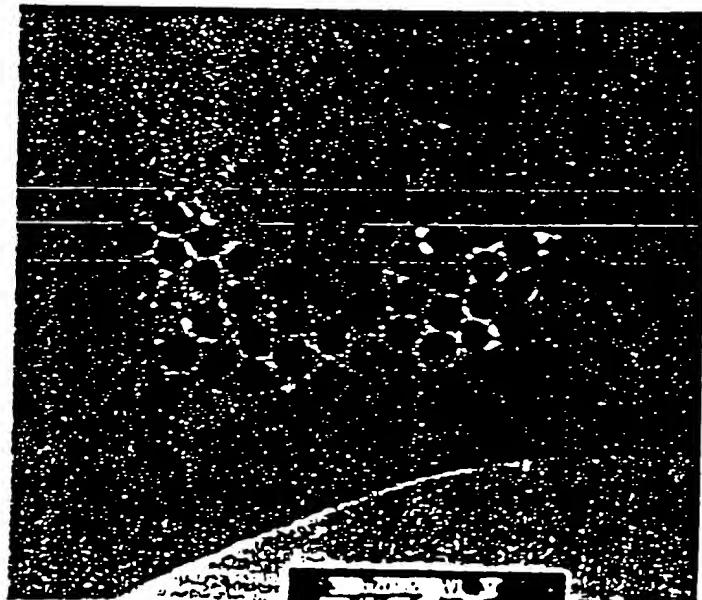


FIG. 9B

FIG. 10

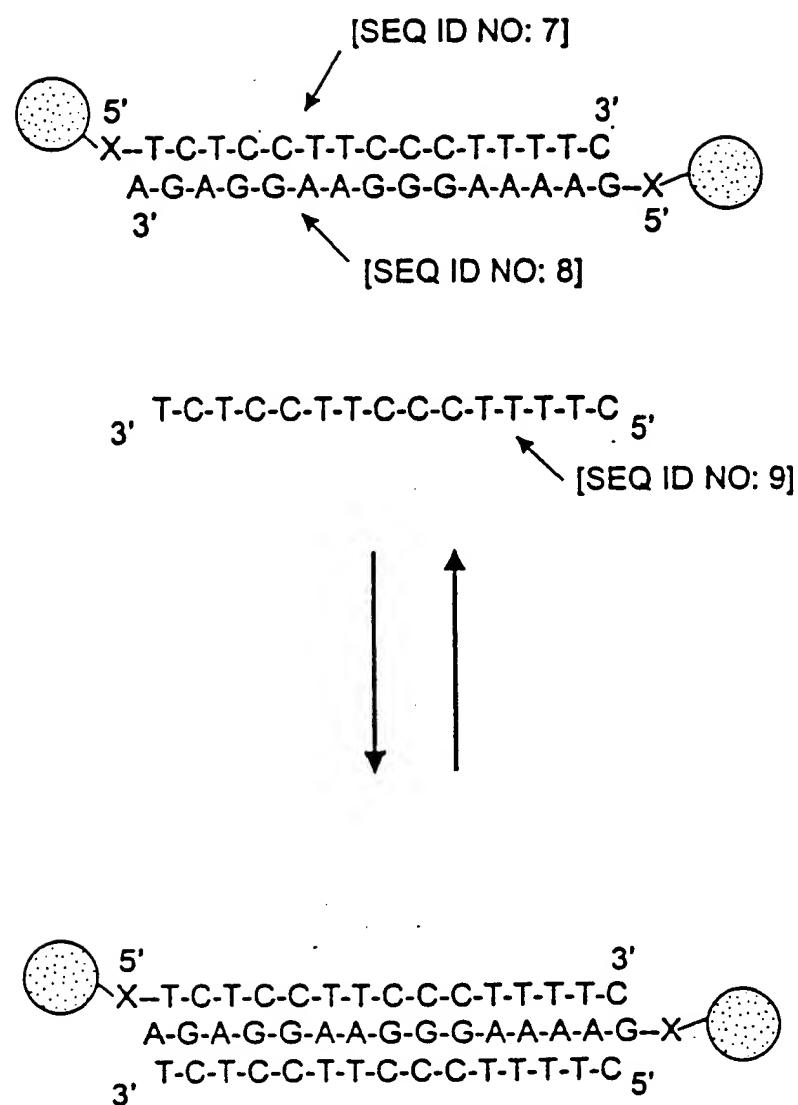


FIG. 11

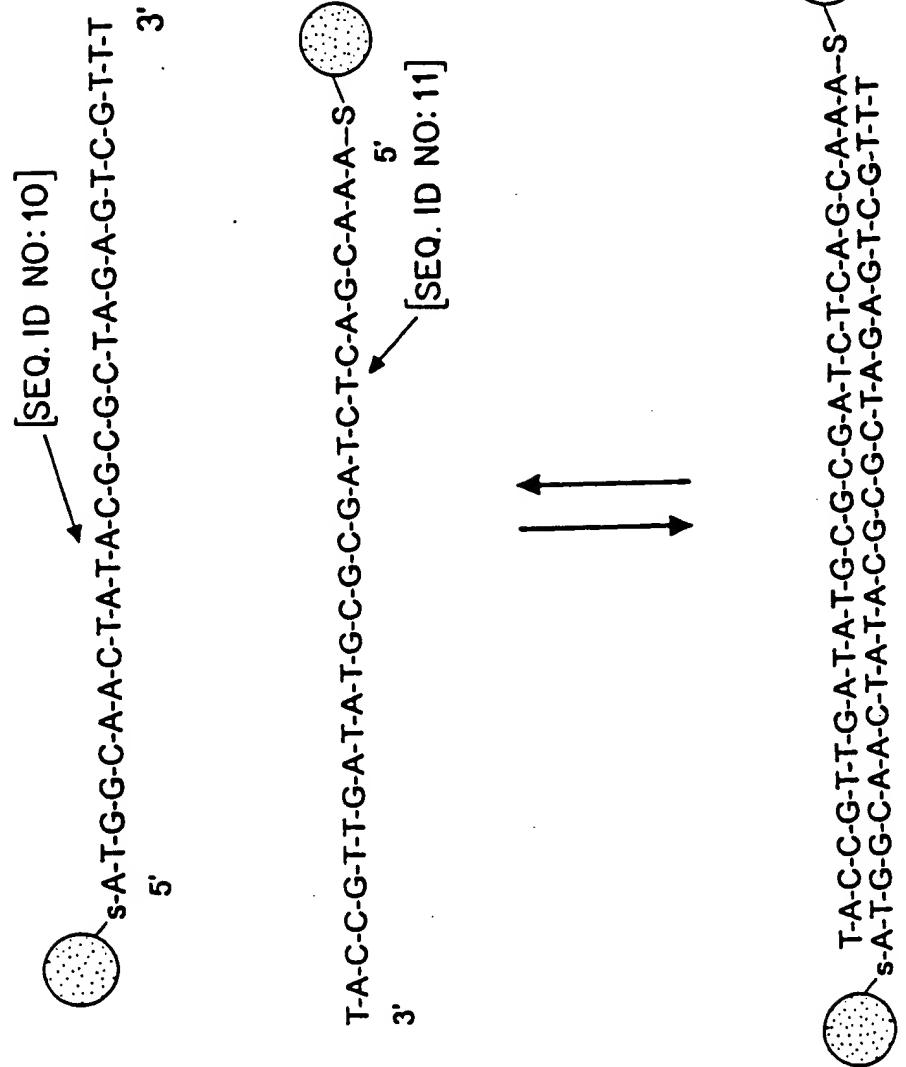


FIG. 12A

Complementary Target

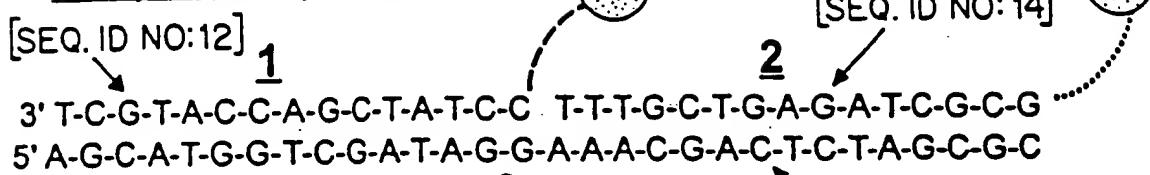


FIG. 12B

Probes without Target



FIG. 12C

Half Complementary Target

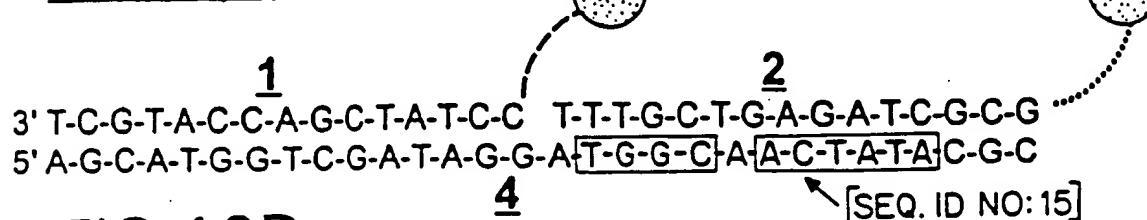


FIG. 12D

Target - 6 bp



FIG. 12E

One bp Mismatch

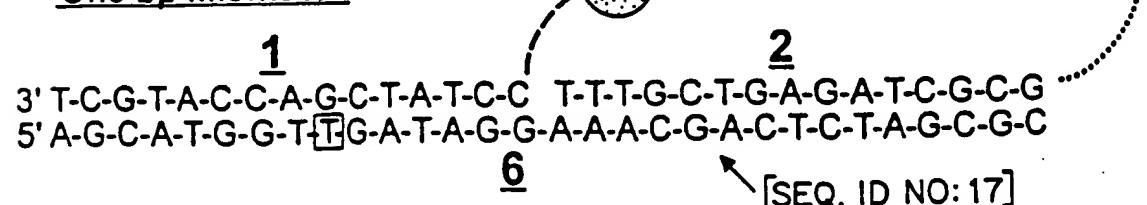


FIG. 12F

Two bp Mismatch

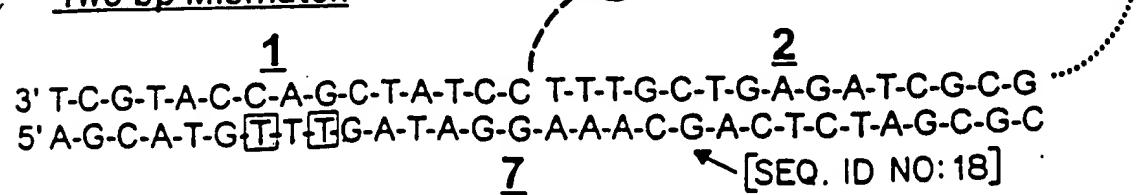


FIG.13A

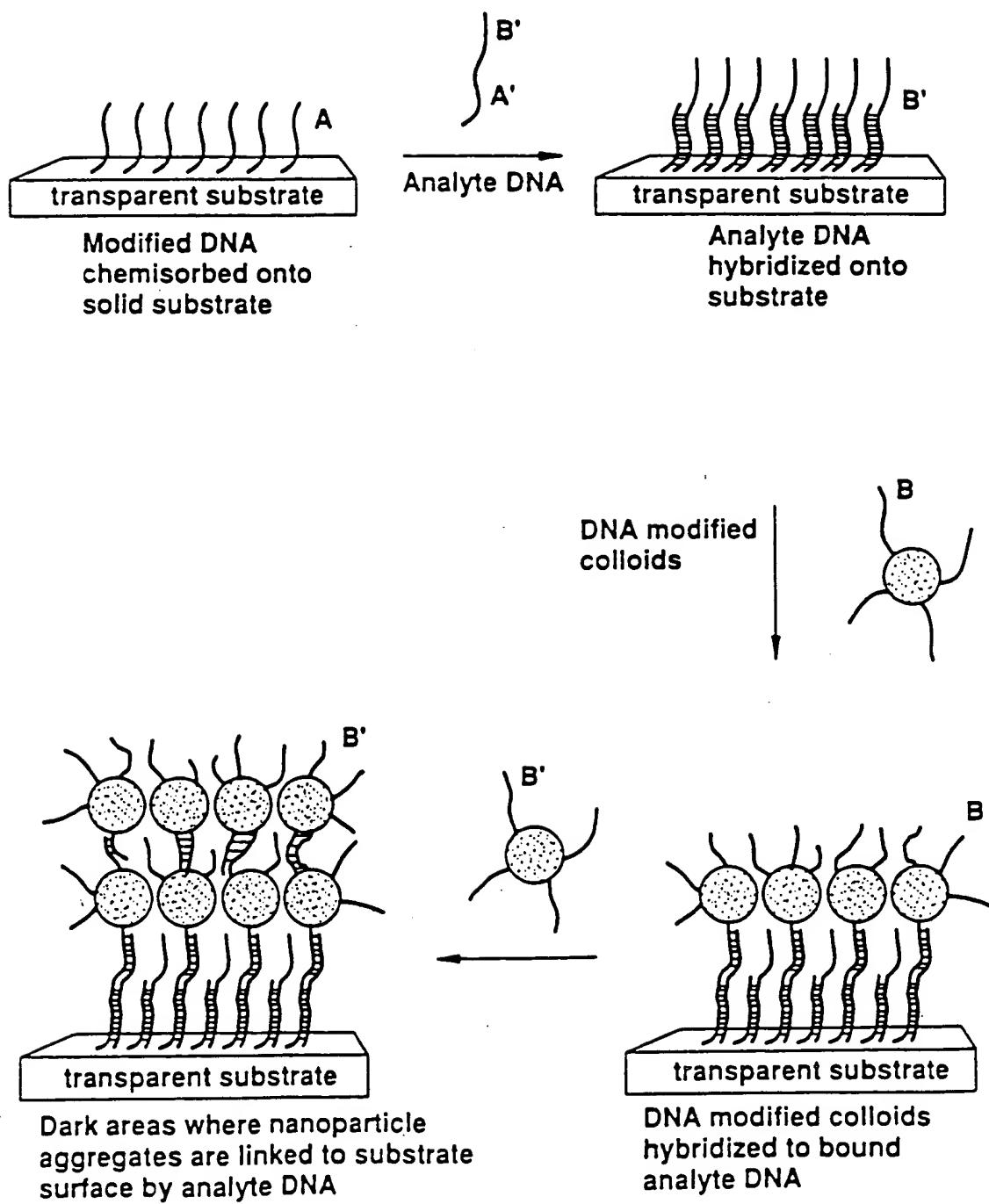


FIG. 13B

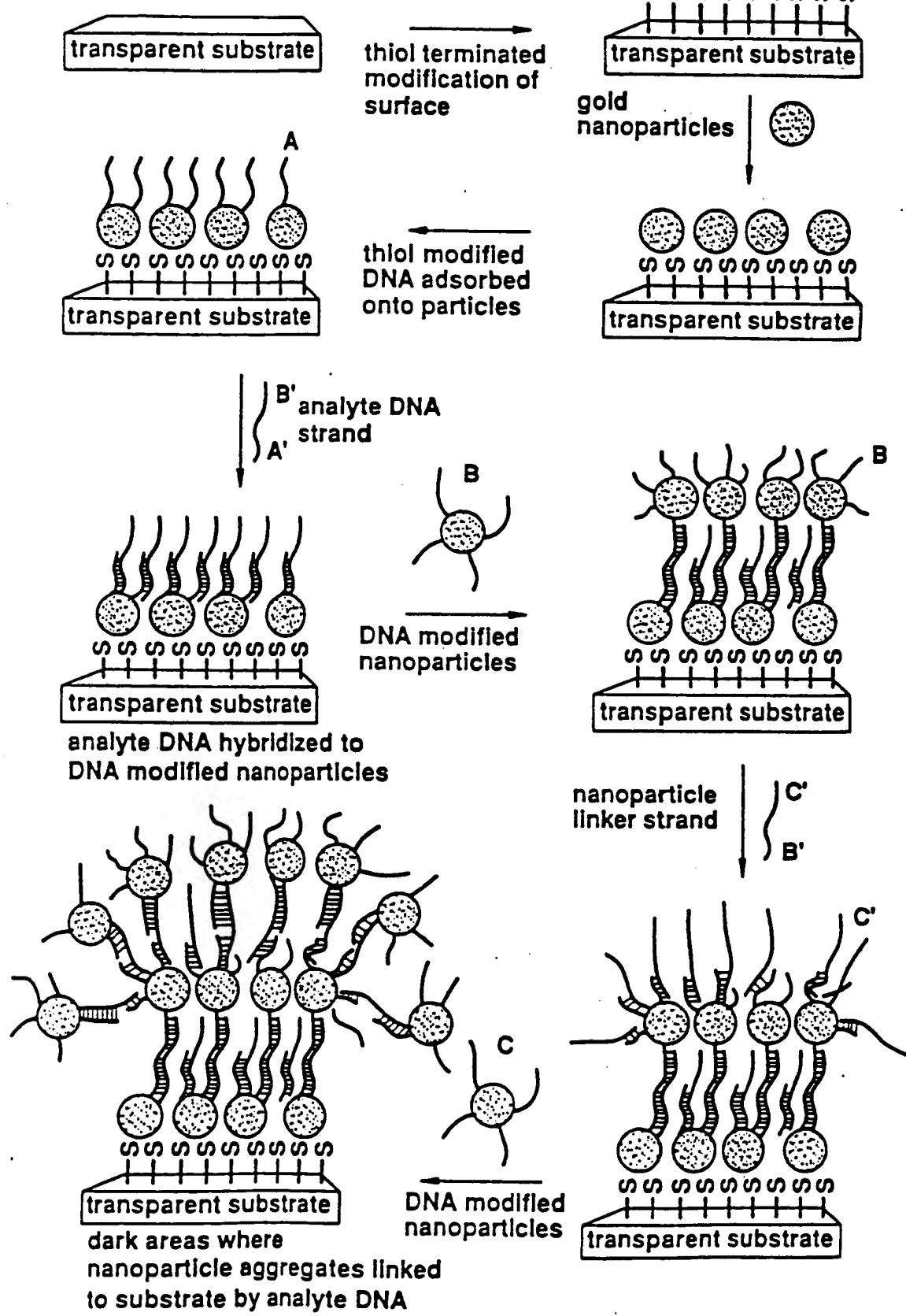


FIG.14A

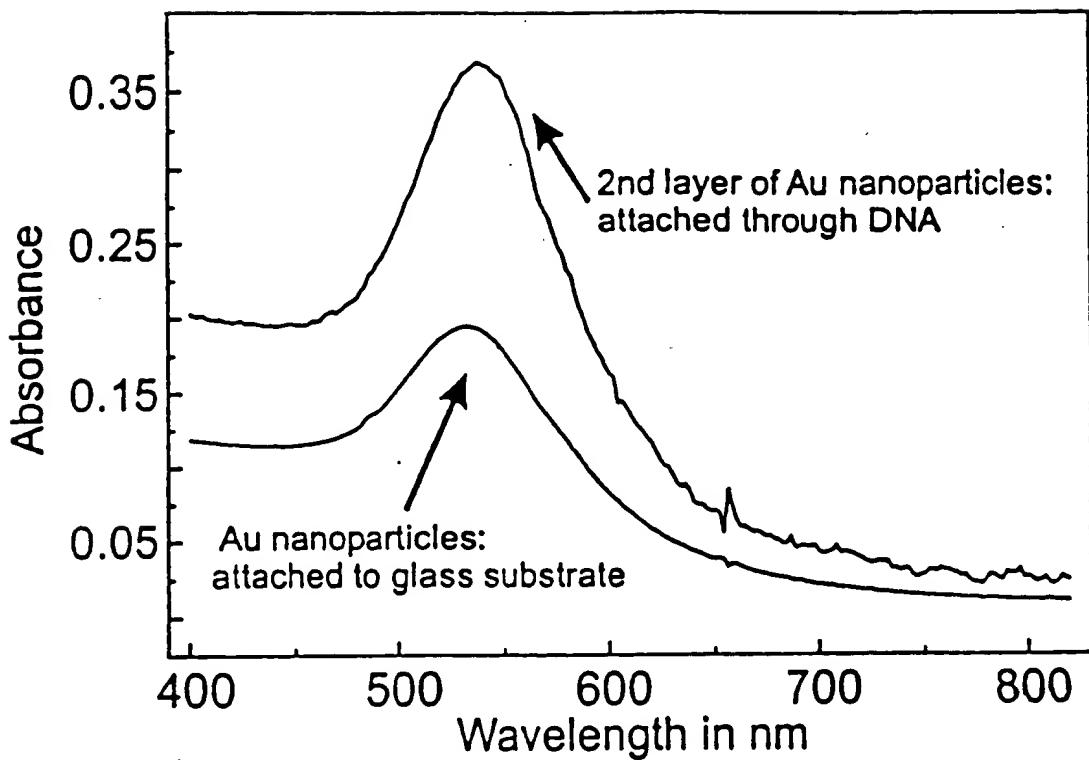


FIG.14B

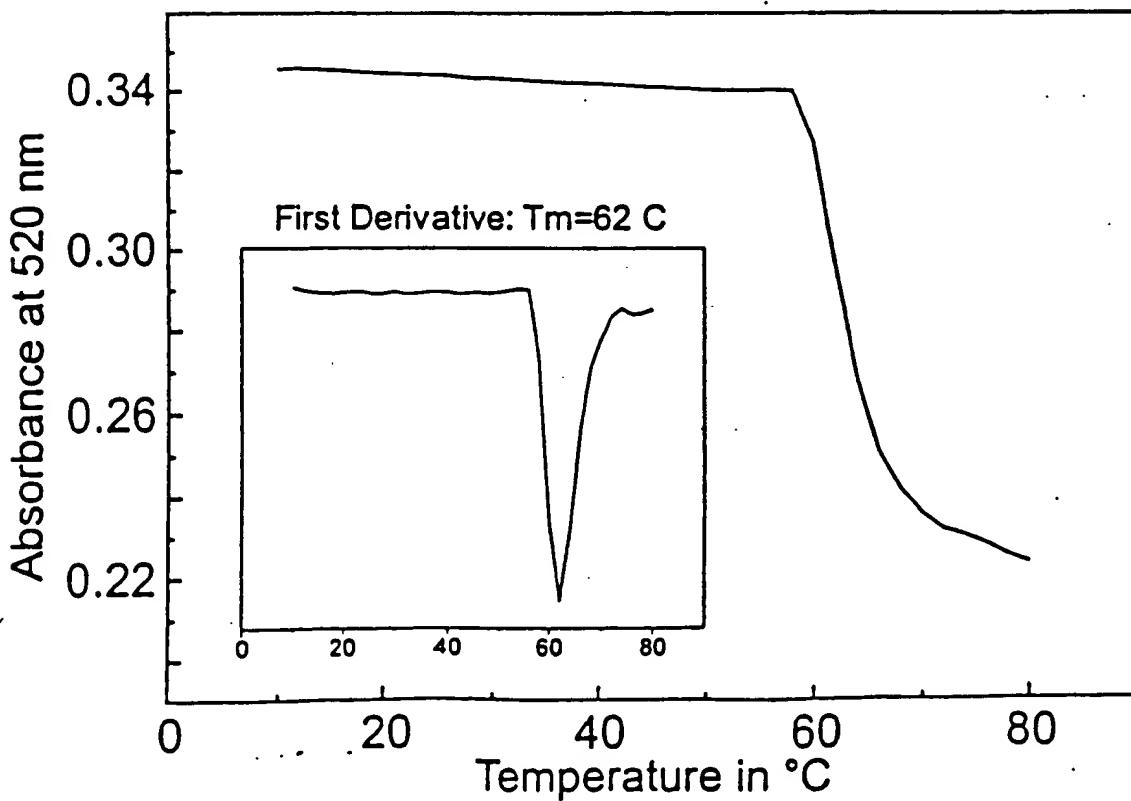


FIG15A

Probes with No Target

SEQ ID NO:19

S-ATG-CTC-AAC-TCT

1

2

SEQ ID NO:20

TAG-GAC-TTA-CGC-S



FIG15B

Half-Complementary Target

3

SEQ ID NO:21

5' TAC-GAG-TTG-AGA-GAG-TGC-CCA-CAT 3'

S-ATG-CTC-AAC-TCT

1

2



FIG15C

Complementary Target

Tm=53.5°C

4

SEQ ID NO:22

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'

S-ATG-CTC-AAC-TCT

1

2



FIG15D

ONE Base-Pair Mismatch at Probe Head

Tm=50.4°C

5

SEQ ID NO:23

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCT 3'

S-ATG-CTC-AAC-TCT

1

2



FIG15E

ONE Base-Pair Mismatch at Probe Tail

Tm=46.2°C

6

SEQ ID NO:24

5' TAC-GAG-TTG-AGA-CTC-CTG-AAT-GCG 3'

S-ATG-CTC-AAC-TCT

1

2



FIG15F

ONE Base Deletion

Tm=51.6°C

7

SEQ ID NO:25

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GC 3'

S-ATG-CTC-AAC-TCT

1

2



FIG15G

ONE Base-Pair Insertion

Tm=50.2°C

8

SEQ ID NO:26

5' TAC-GAG-TTG-AGA-CAT-CCT-GAA-TGC-G 3'

S-ATG-CTC-AAC-TCT

1

2



0909266310 45942200

FIG. 16A

24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'
-S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S -
1 2

FIG. 16B 48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'
-S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGG TAG-GAC-TTA-CGC-S -
1 2

FIG. 16C

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGG-JTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG-3'
—S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-AAA-TGC-CTG-TTG TAG-GAC-TTA-GCG-S—
1 2

FIG. 17A

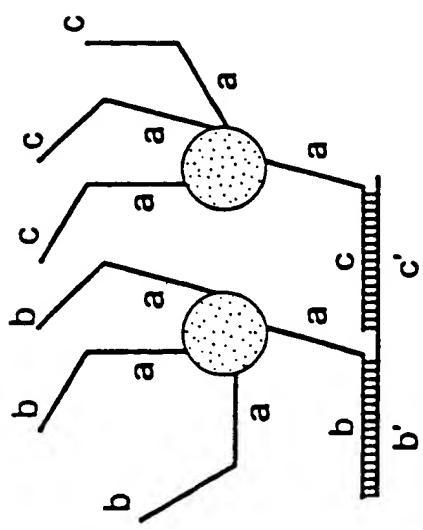


FIG. 17B

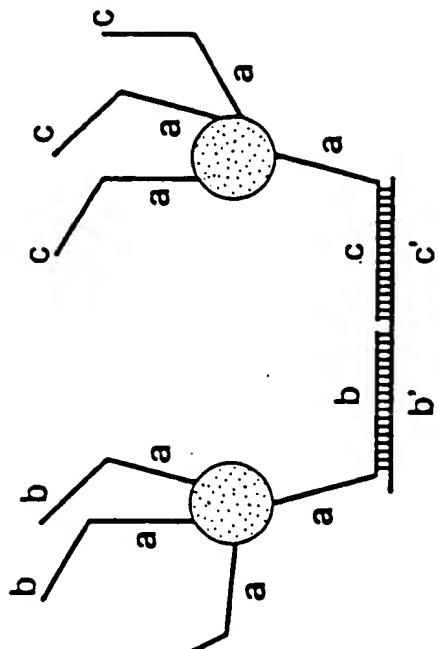


FIG. 17C

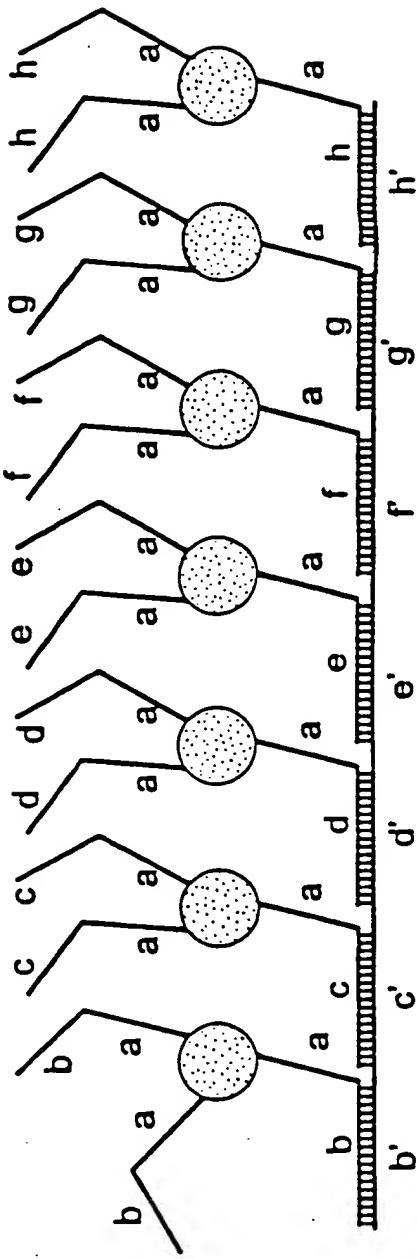


FIG. 17D

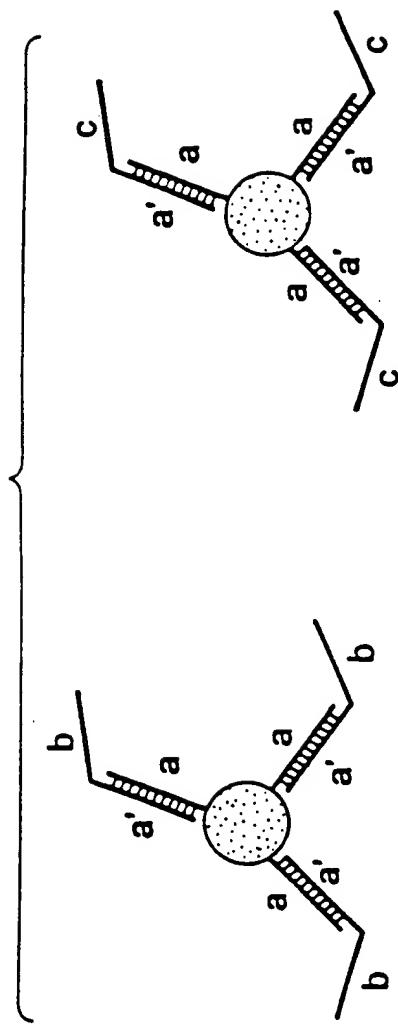


FIG. 17E

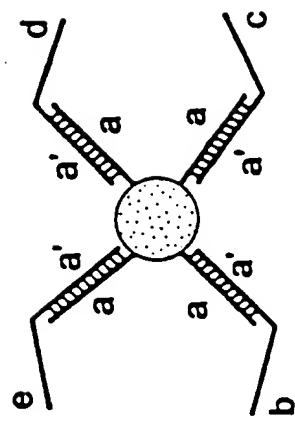


FIG.18

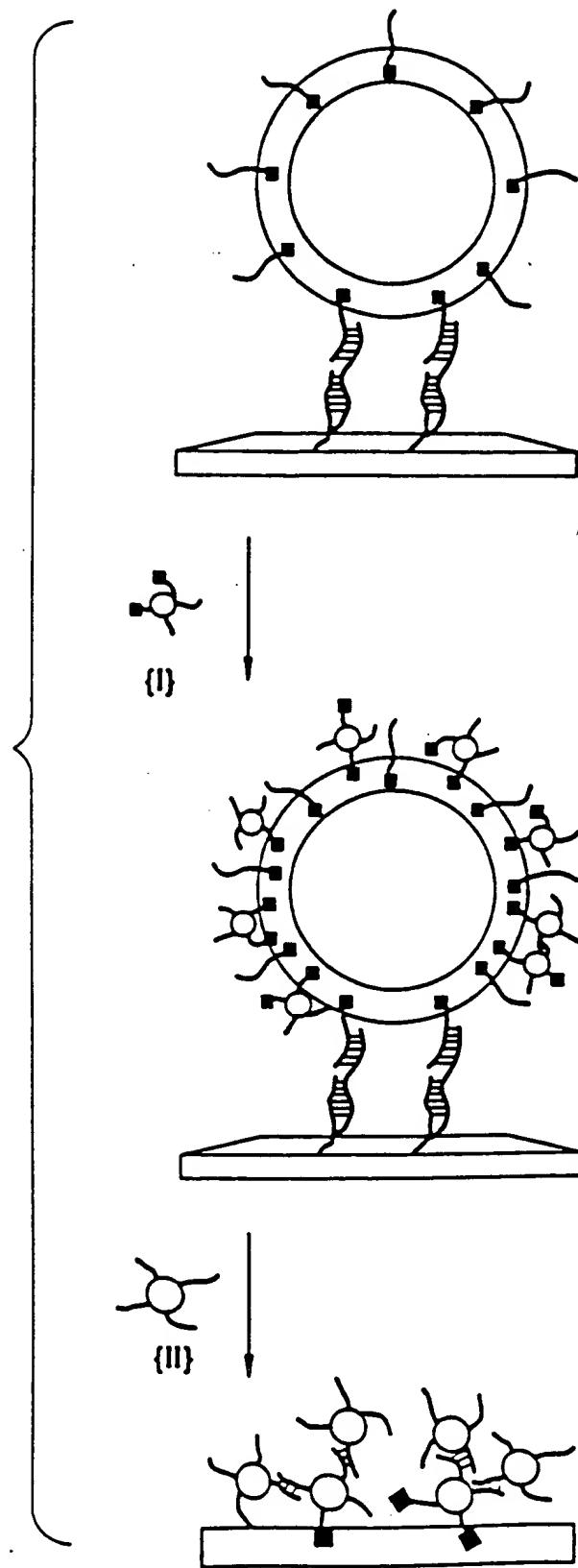


FIG. 19A

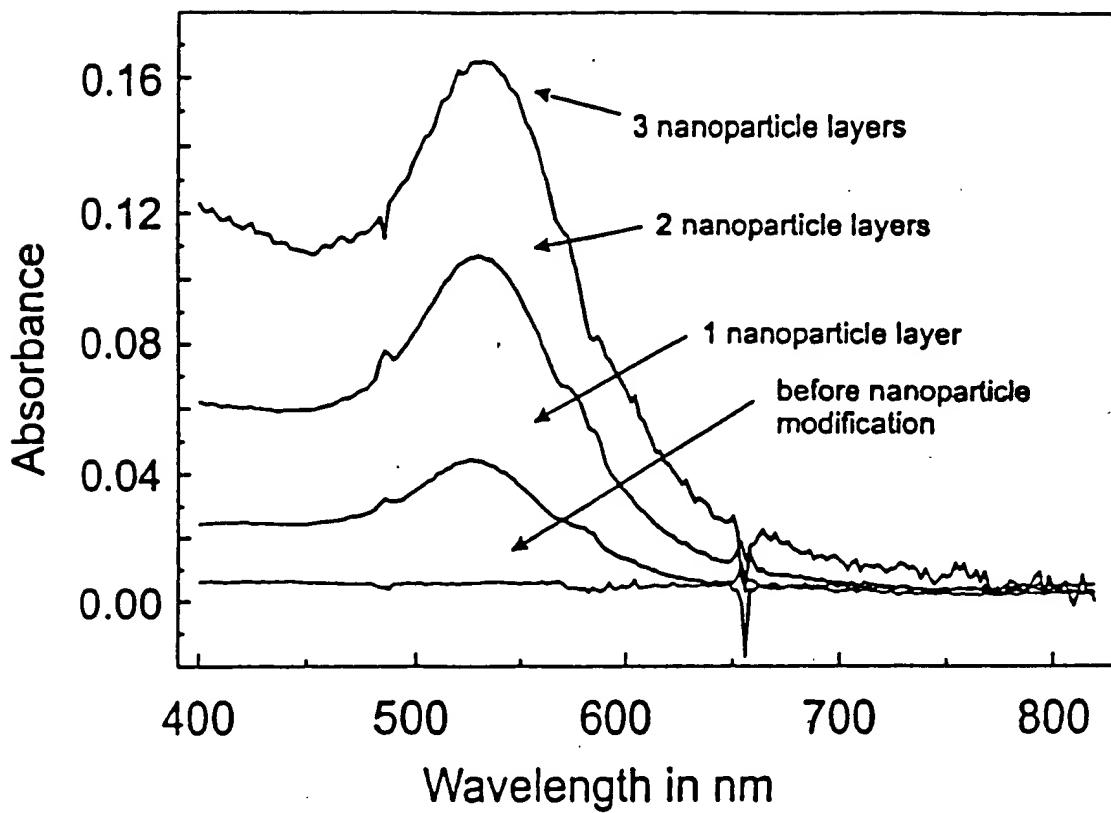


FIG. 19B

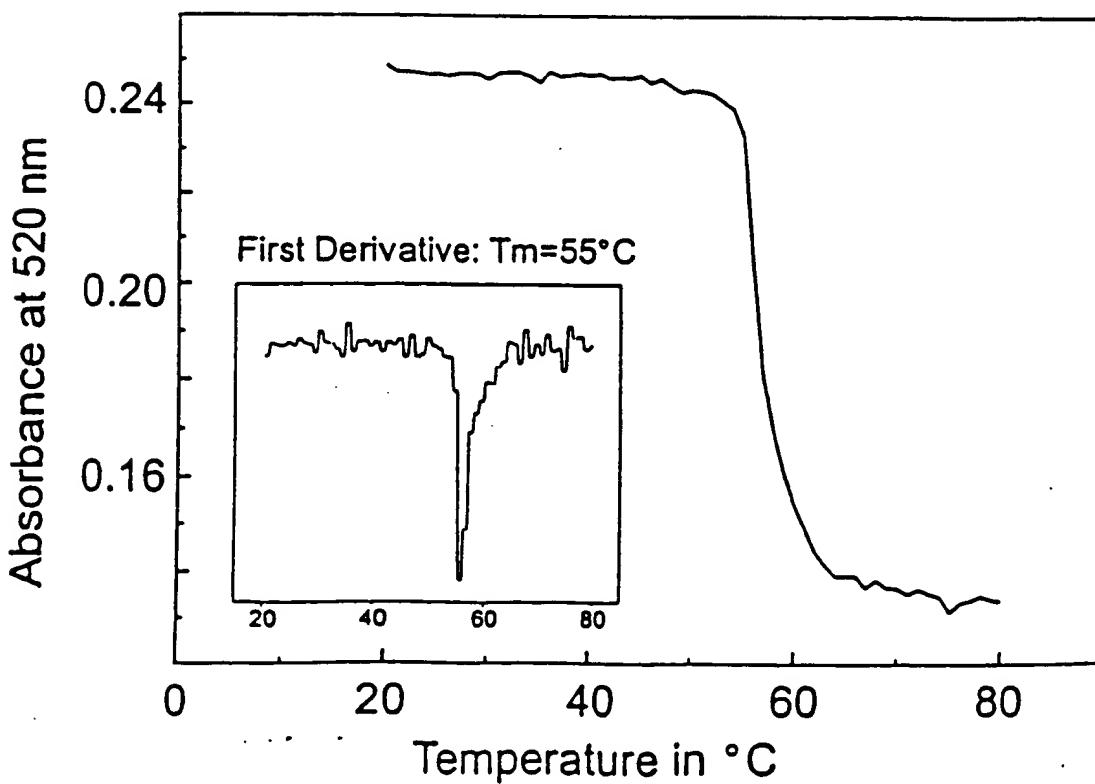


FIG.20A

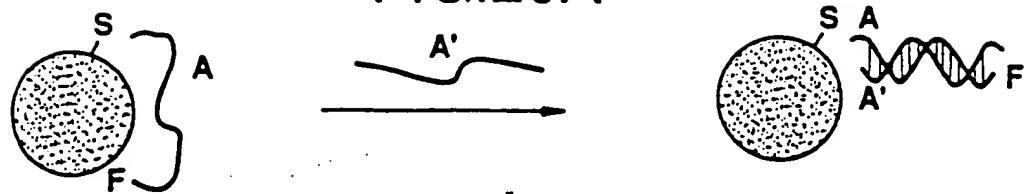
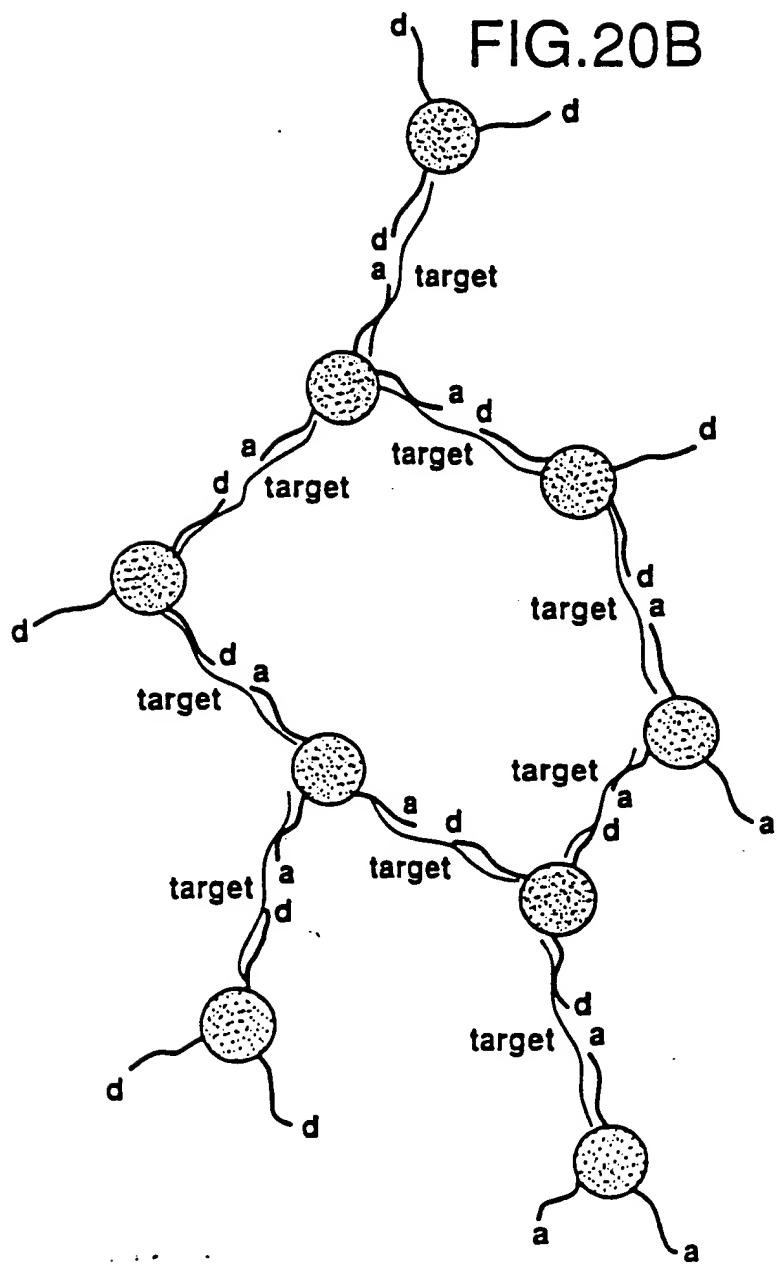


FIG.20B



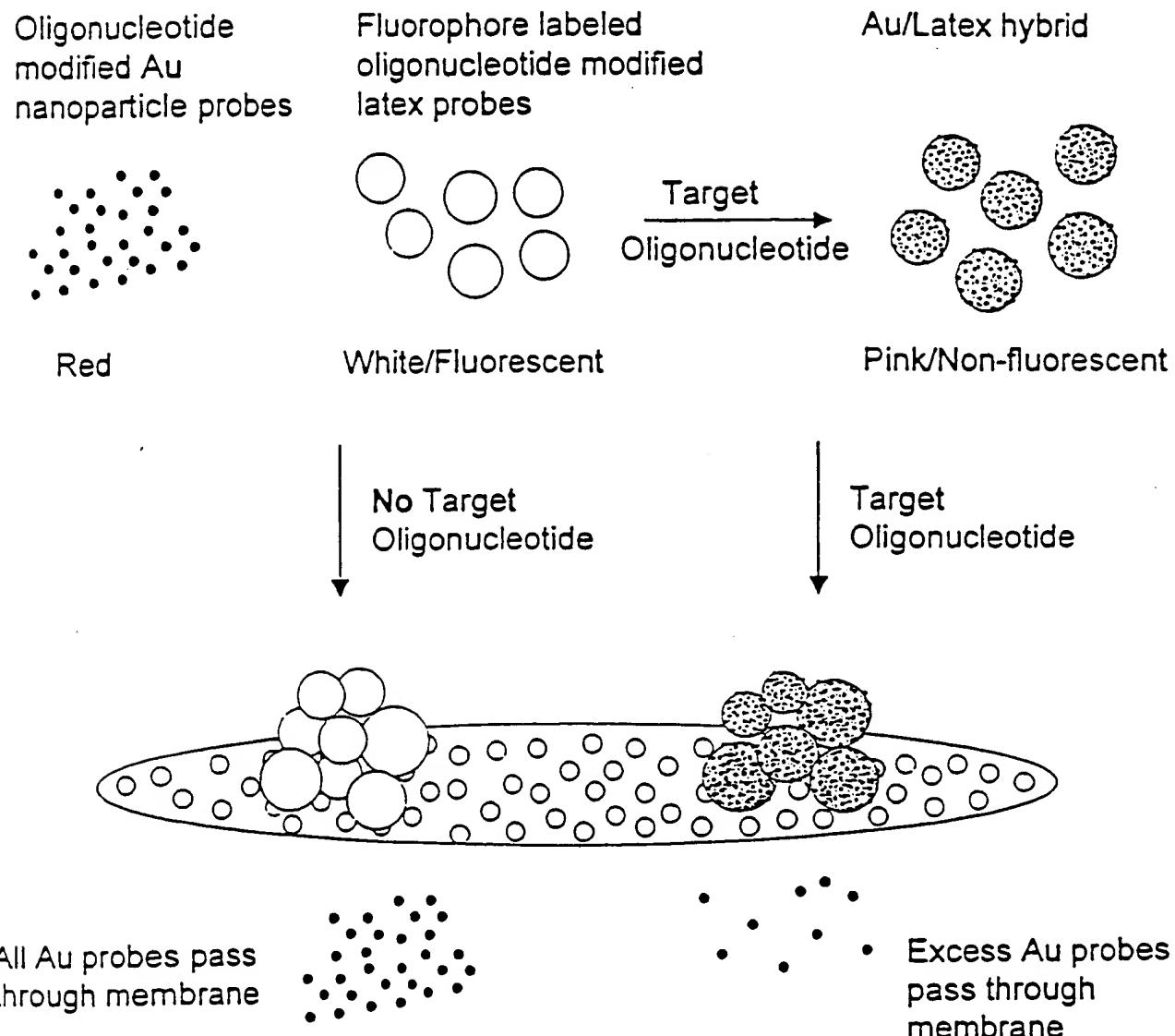
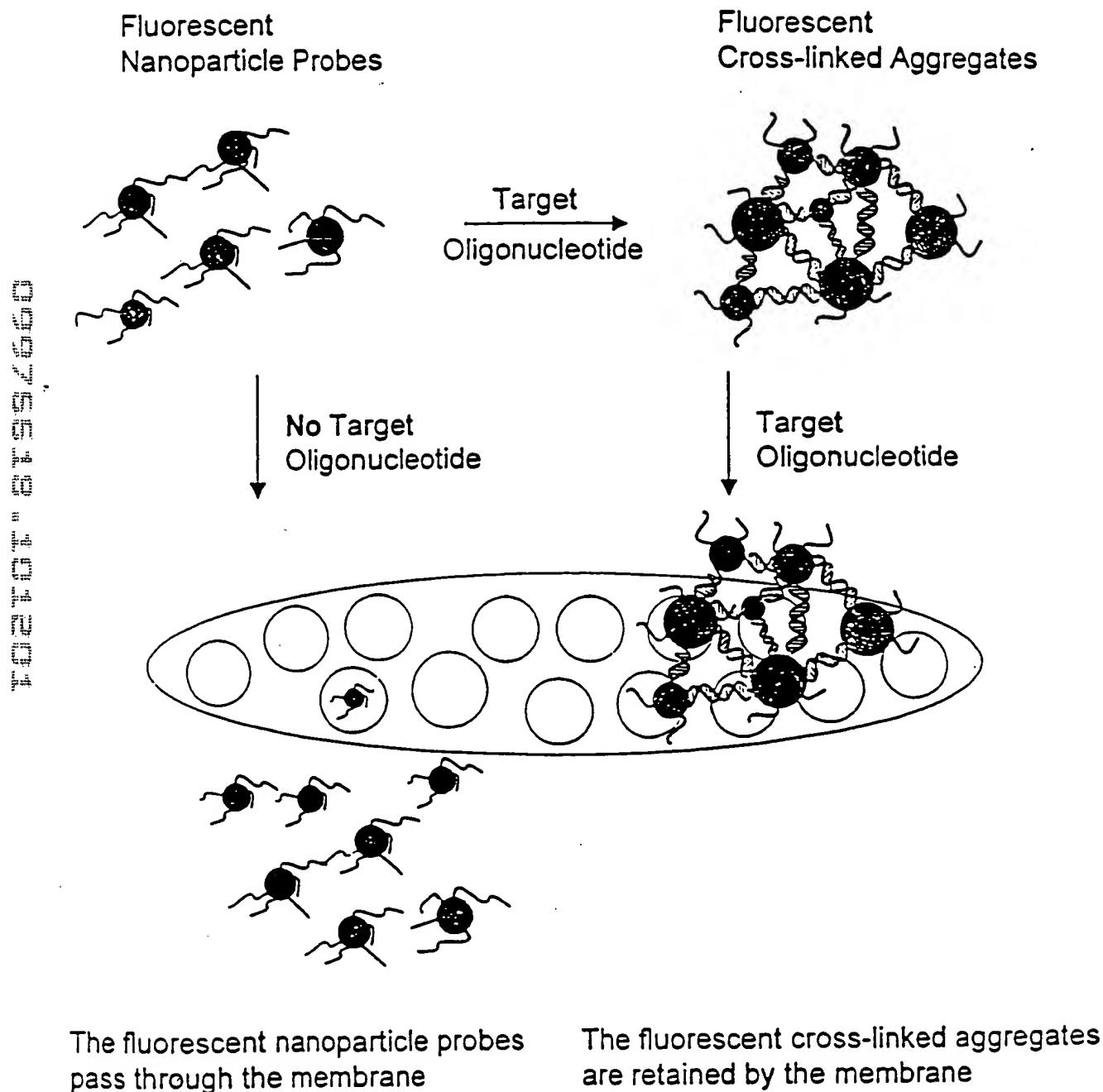


FIGURE 21

FIGURE 22



Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT
3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

141 mer Anthrax PCR product [SEQ ID NO:36]

3' CTC CCT AAT AAC AAT ·

[SEQ 10 NO: 37]

3' TTA TAA CTA TTC CTA

[SEQ ID NO: 38]

Oligonucleotide-Nanoparticle Probes

Blocker Oligonucleotides

3' C CCG GTC GTC ACT GAT CAA TTC CTC CTC CGA GT

[SEQ ID NO:39]

3' A TGT GTC GAT TAA TAA AGC AGT TGT

RESEQ 15 NO: 40]

3' TAT TCT TTT TAT AAT AGG TCC CAA TAT

5 SEP 19 NO: 417

3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA

ESD ID NO: 42

FIGURE 23

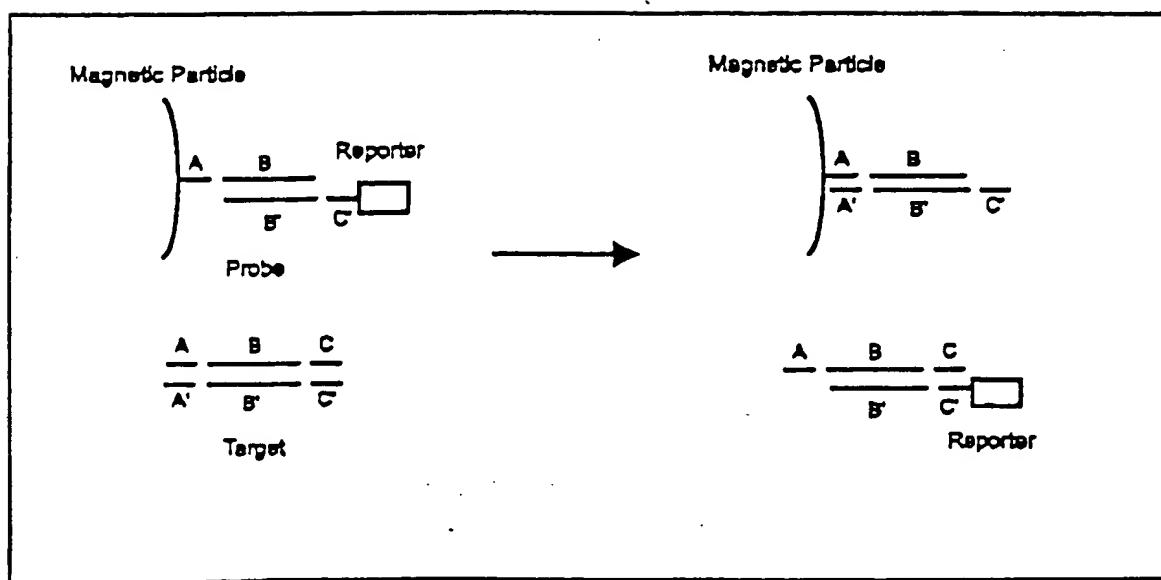
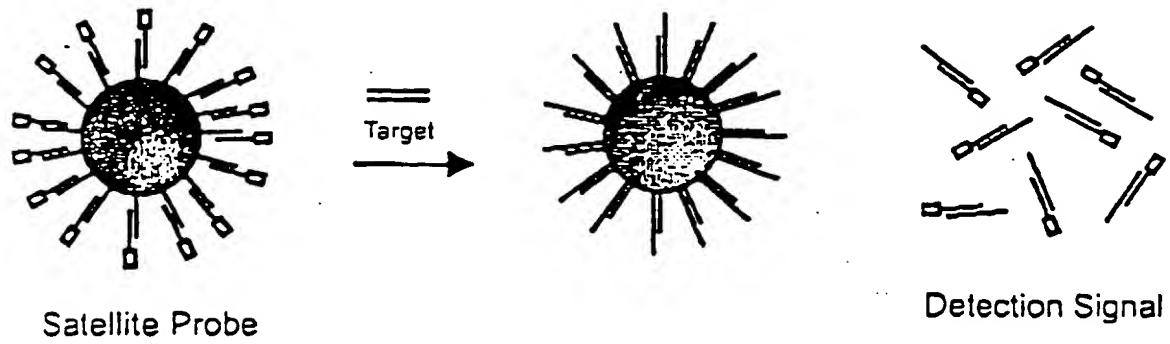


FIGURE 24

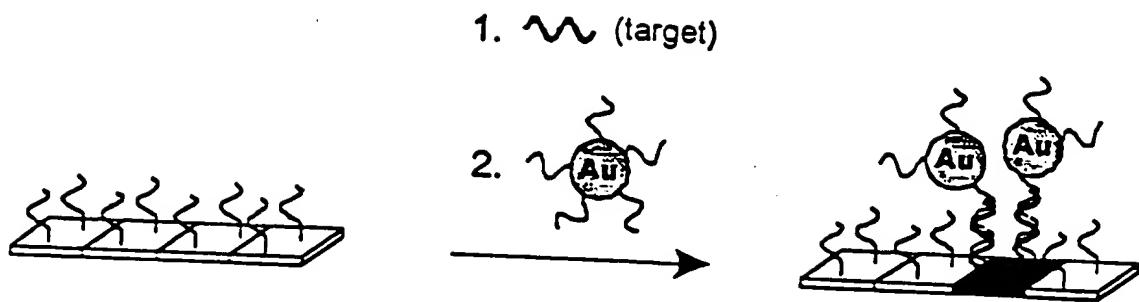


FIGURE 25A

2019-07-10 10:39:26

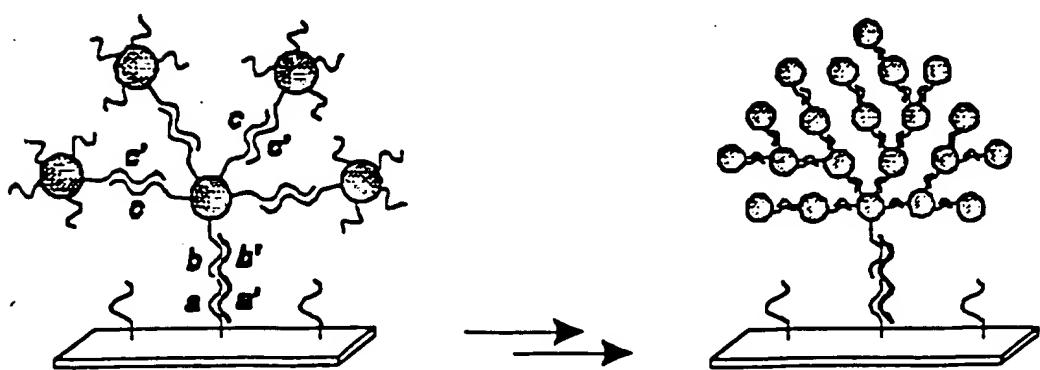
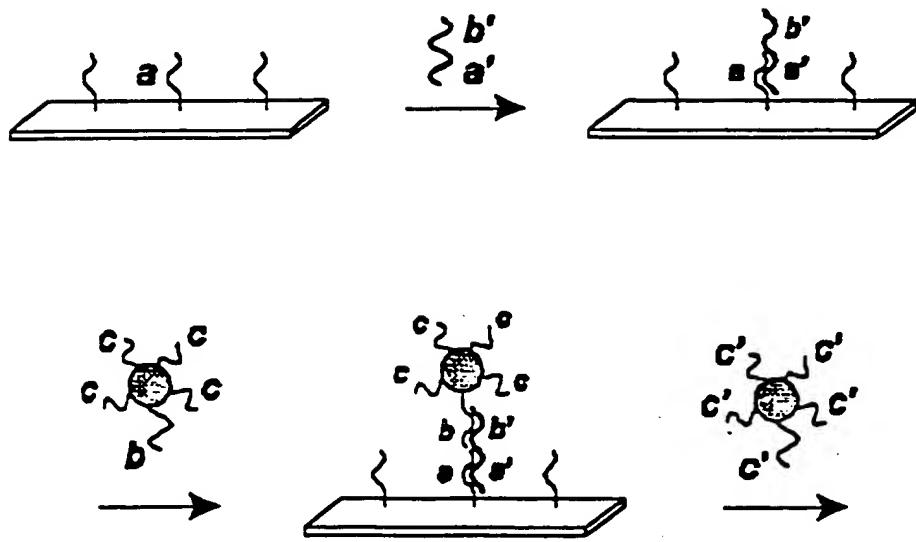


FIGURE 25B

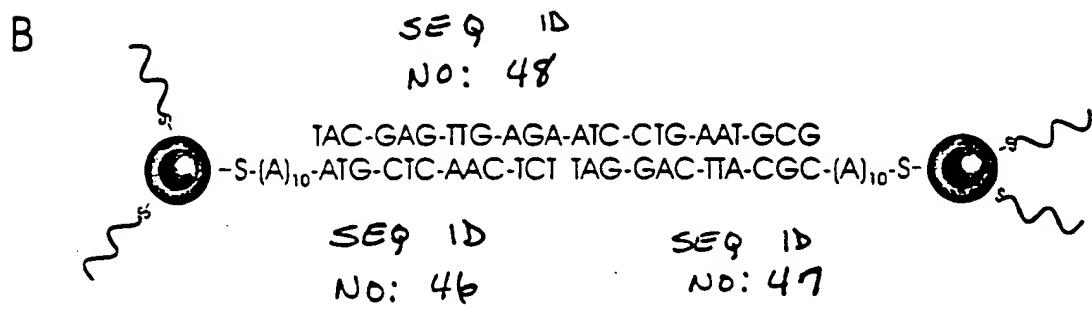
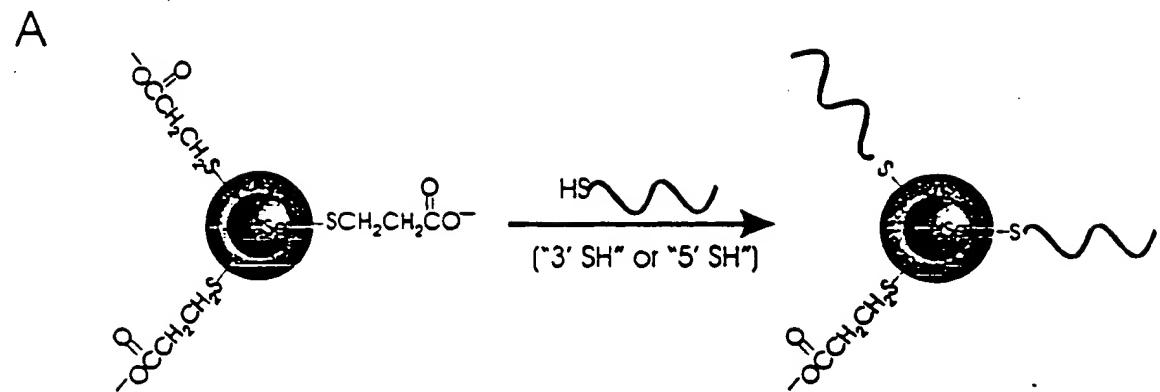


FIGURE 26

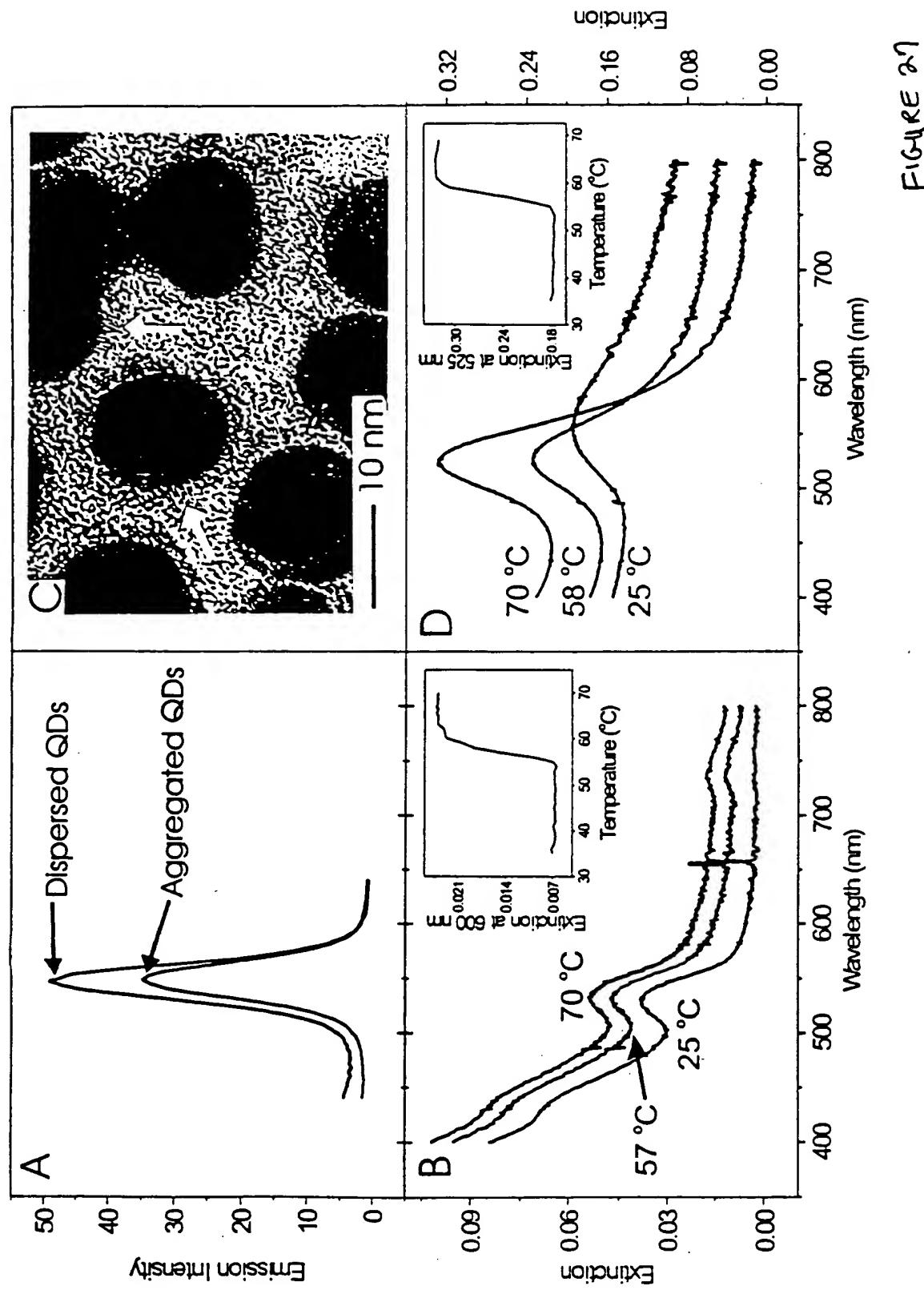


FIGURE 2

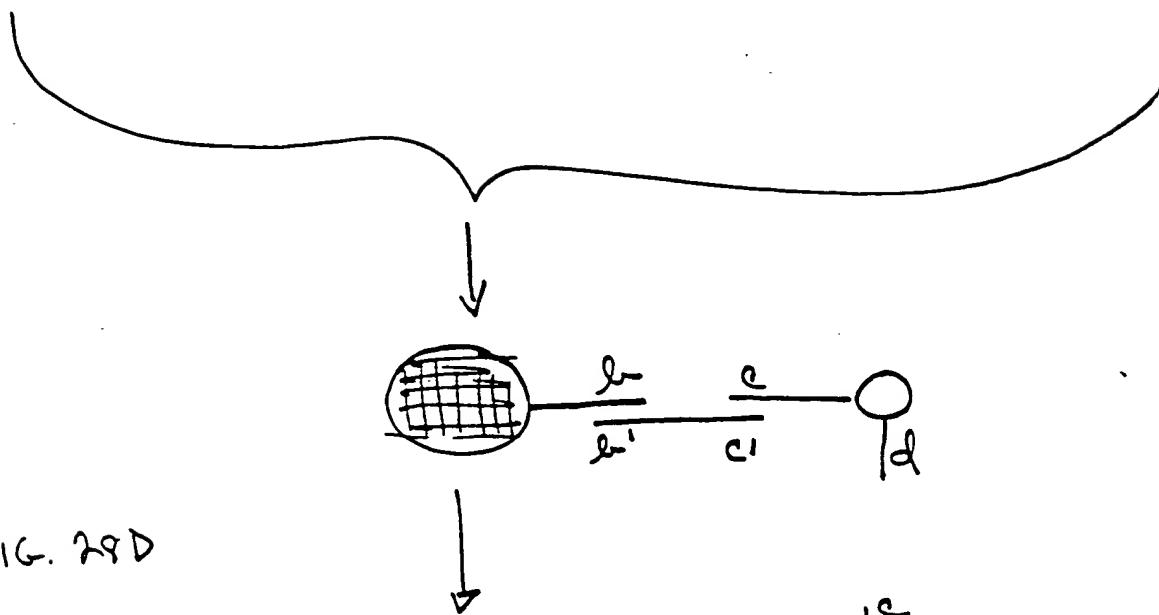
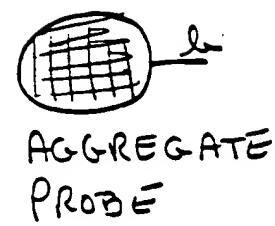
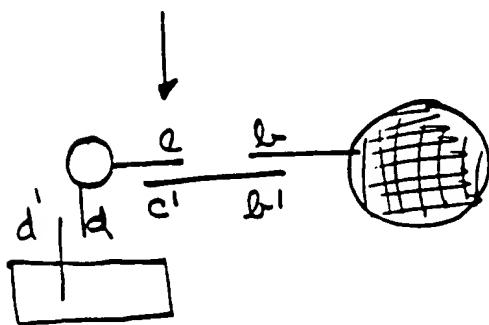
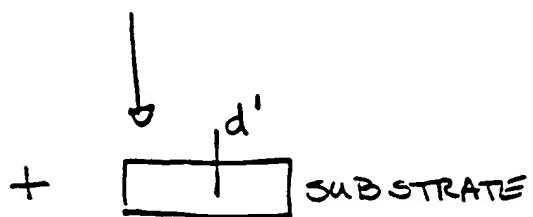


FIG. 29D

REMOVE EXCESS
BY CENTRIFUGATION



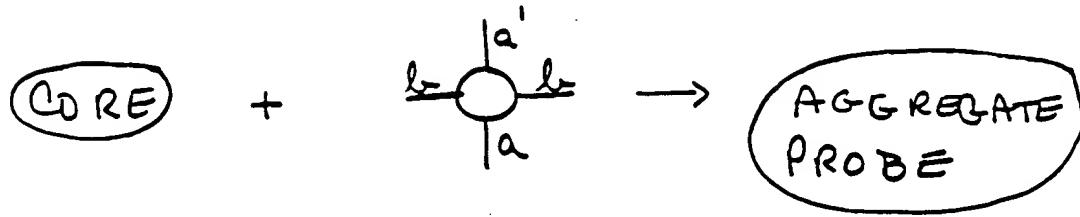
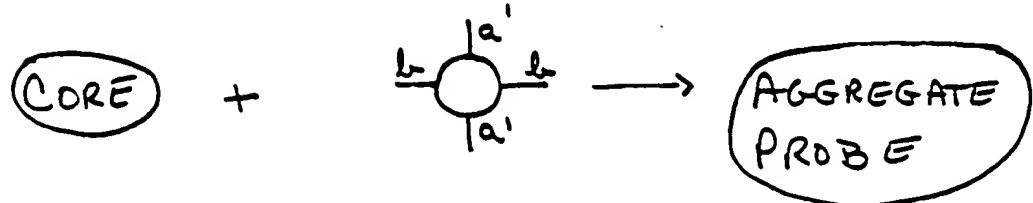
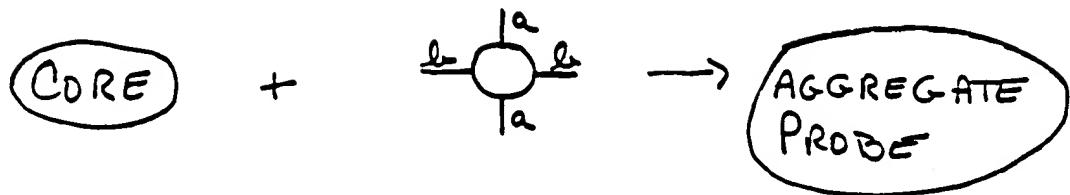
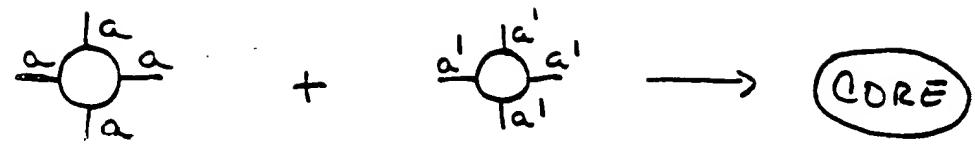


FIGURE 28A

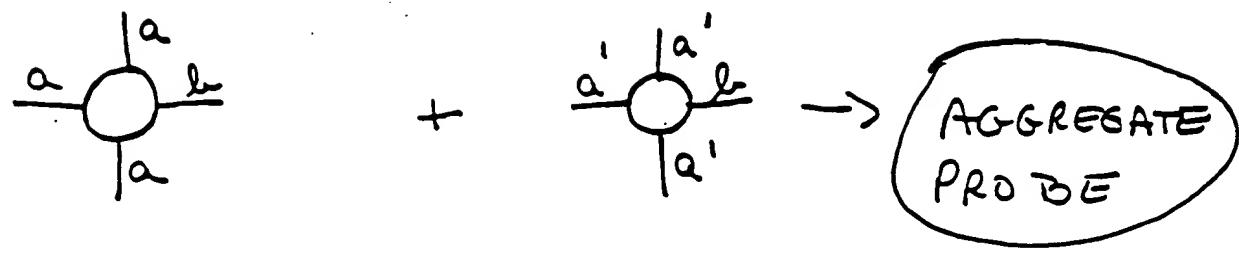


FIGURE 28 B

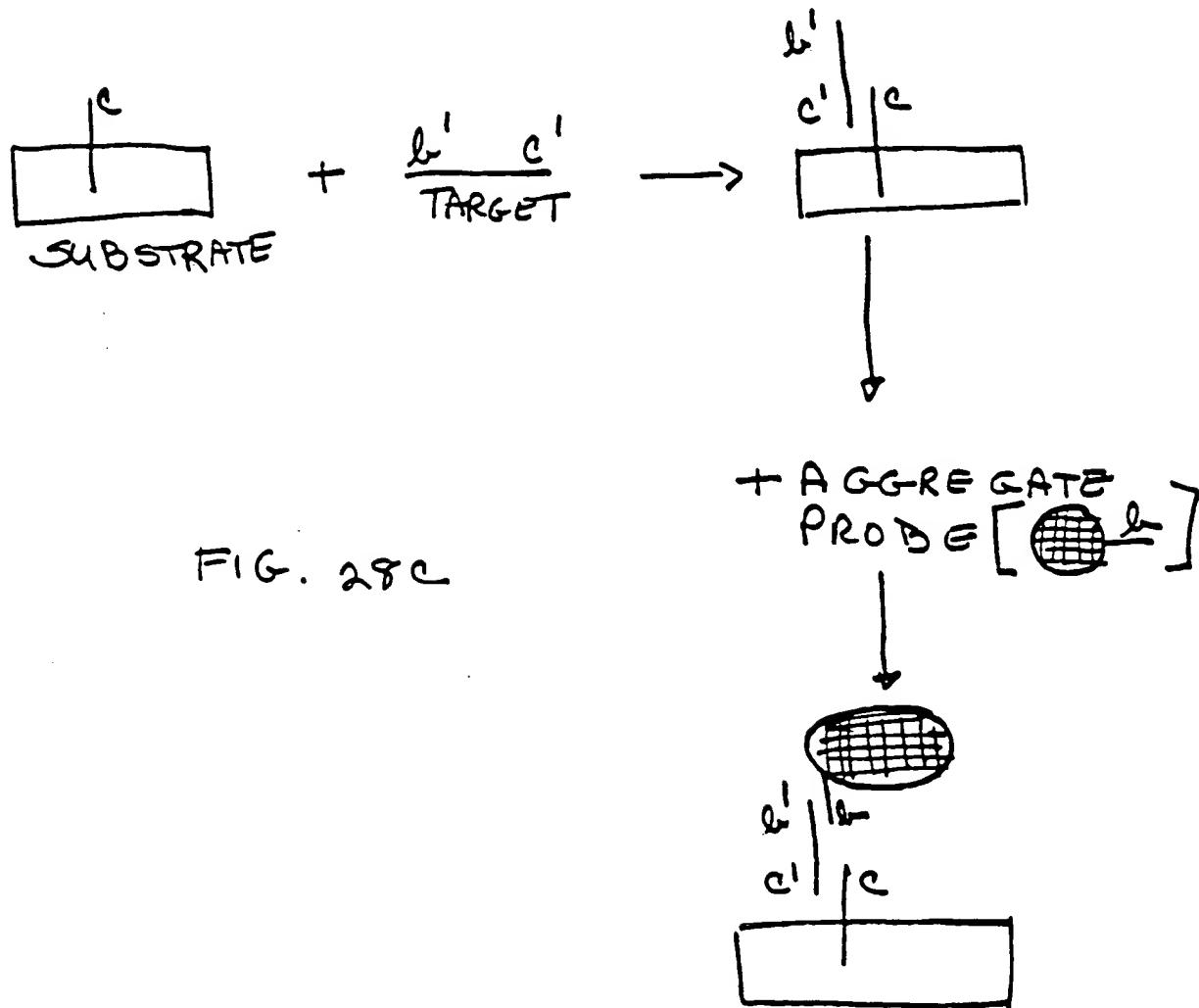


FIG. 28 C

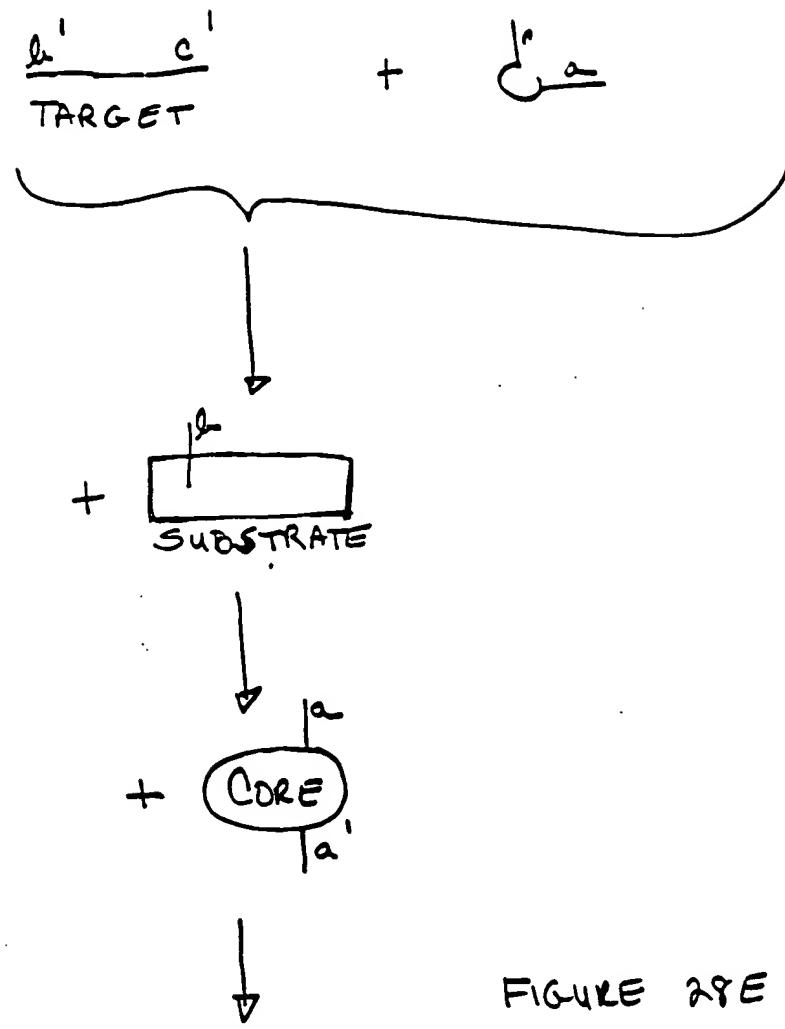
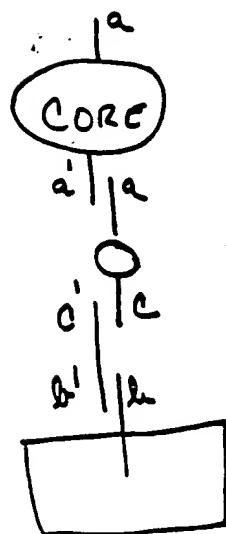


FIGURE 28E



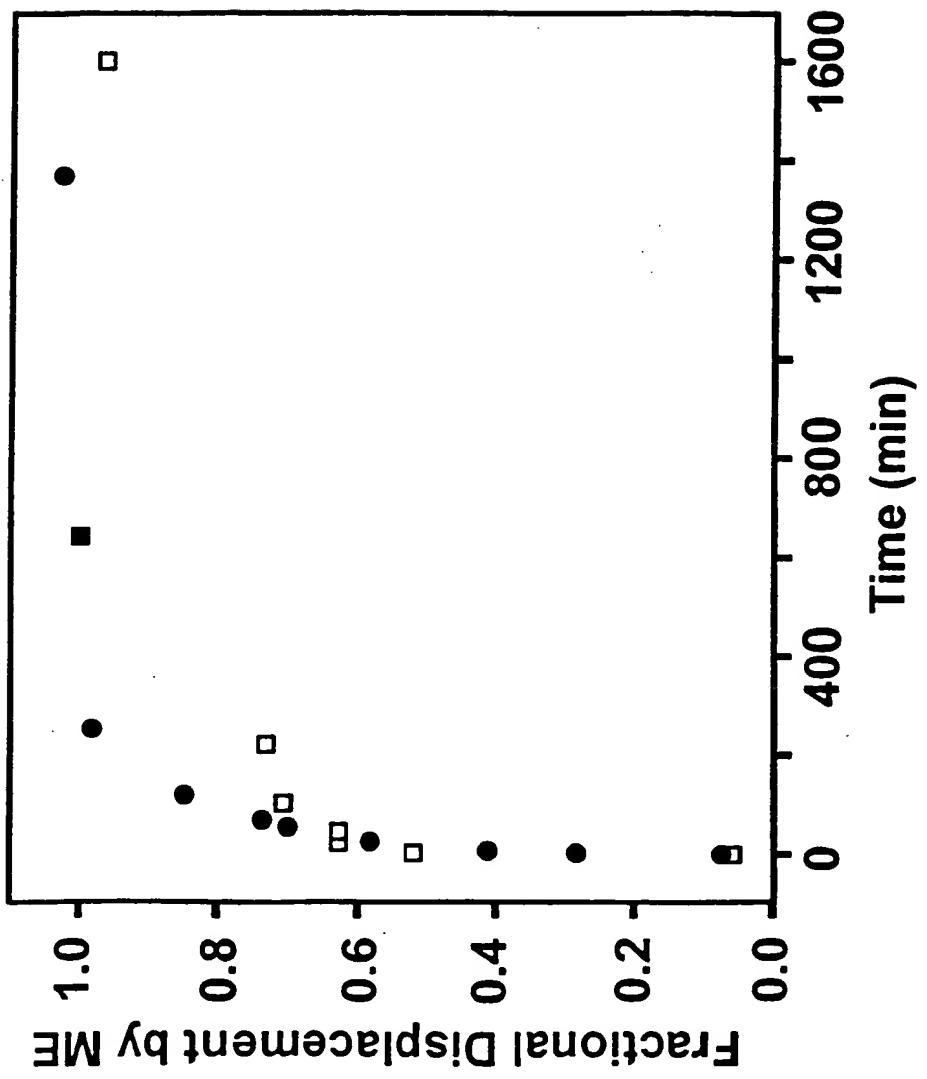


Figure 29

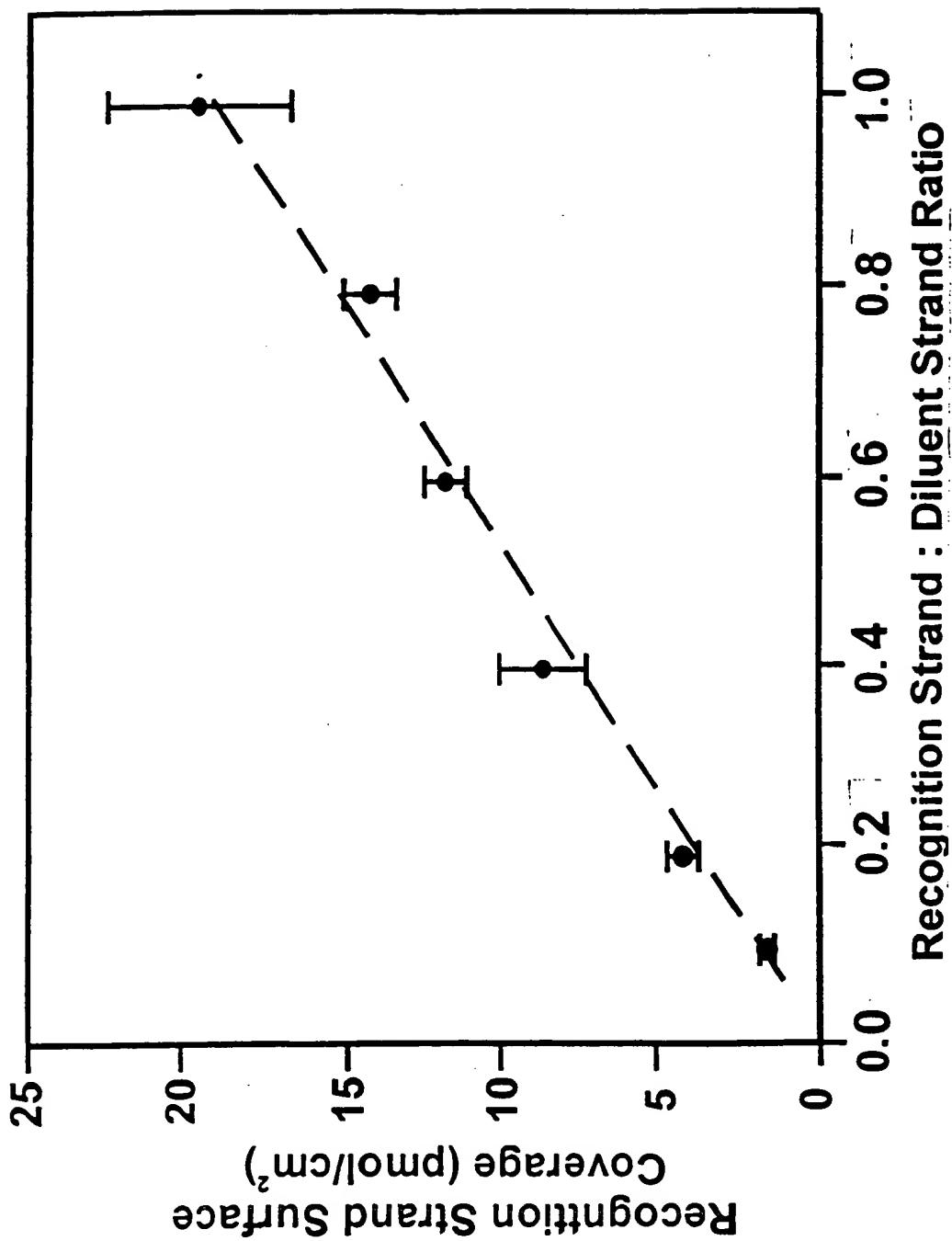


Figure 30

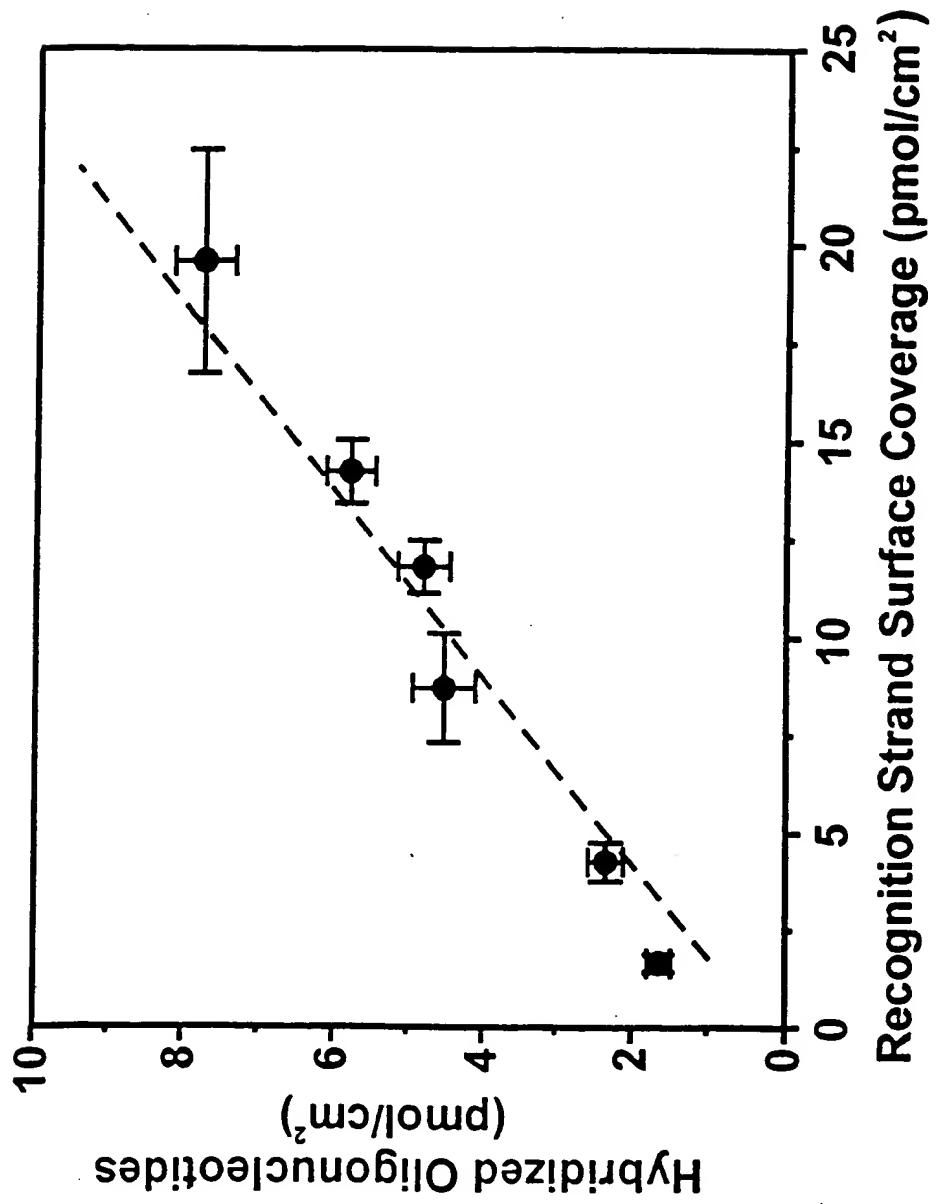


Figure 31

[SEQ ID NO:56]

5' GGA TTA TTG TTA---AAT ATT GAT AAG GAT 3'

— CCT ANT AAC AAT TTA TAA CTA TTC CTA

[SEQ ID NO:57]

[SEQ ID NO:58]

N = A (complementary),
G,C,T (mismatched)

1. \sim (target DNA)

2. \sim Au

Ag^+
hydroquinone
(pH 3.8)

$\text{Ag}(s)$
quinone

Figure 32

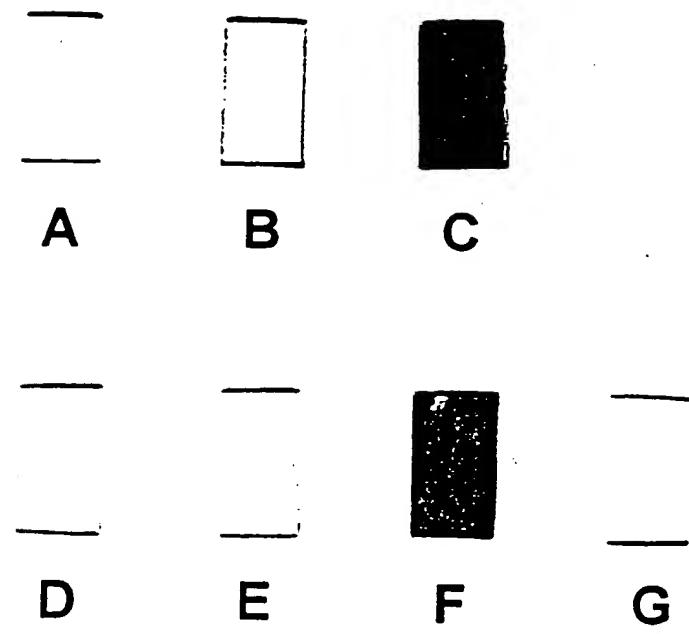
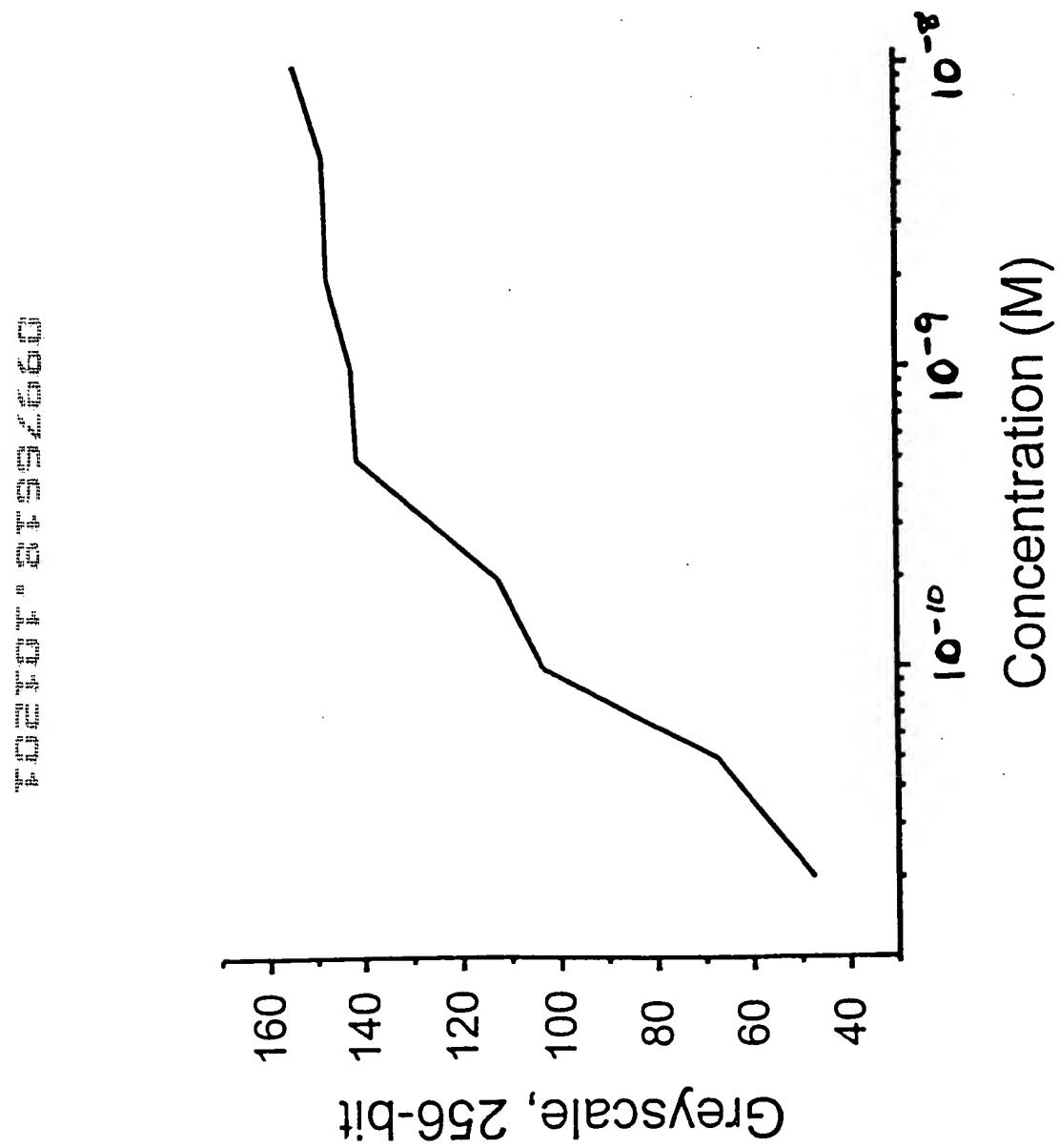


Figure 33

Figure 34



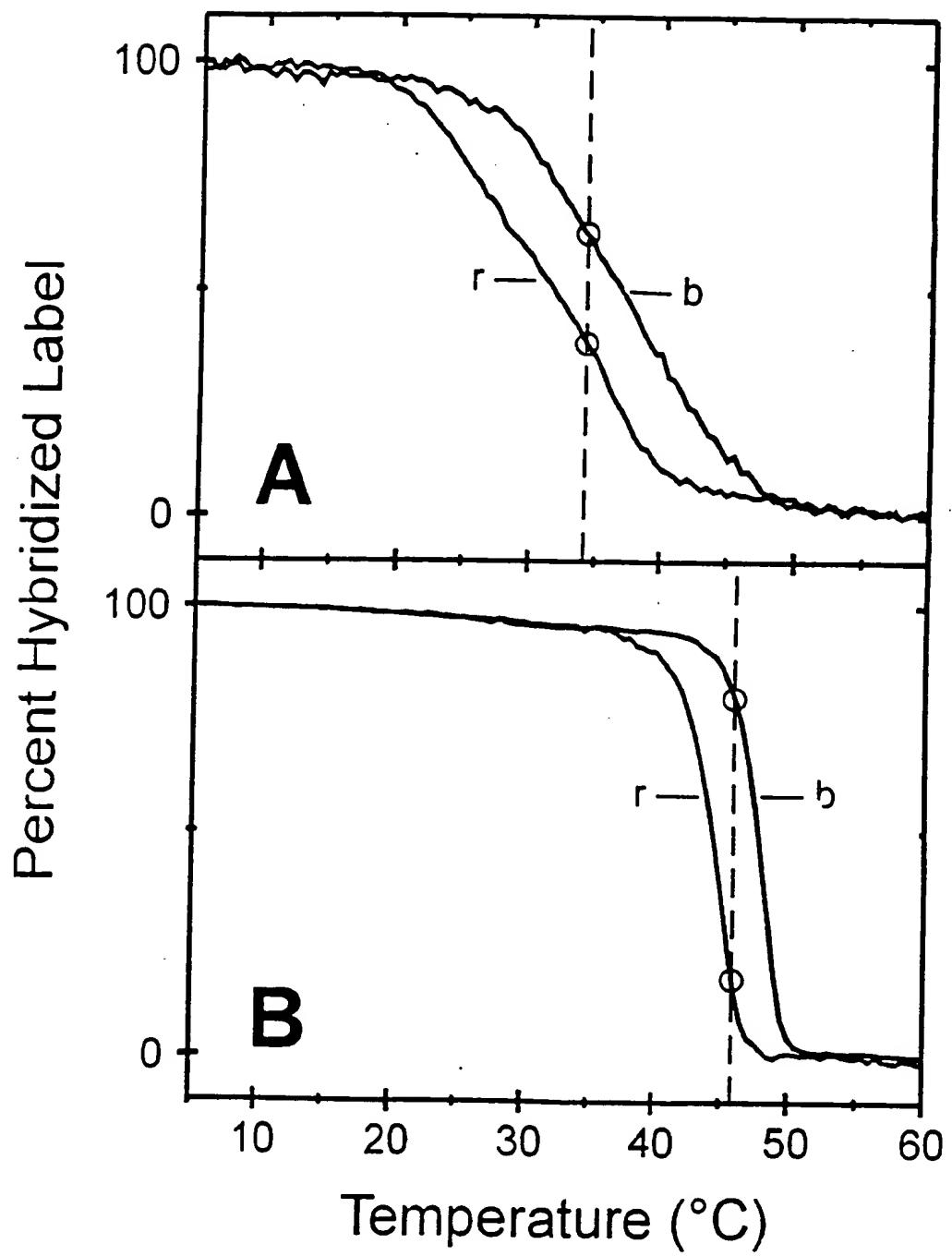


Figure 35

FIG. 36A

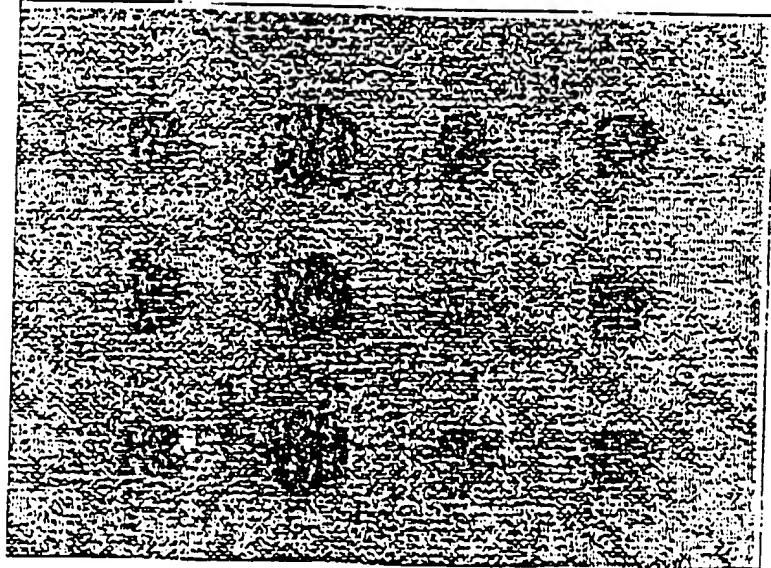
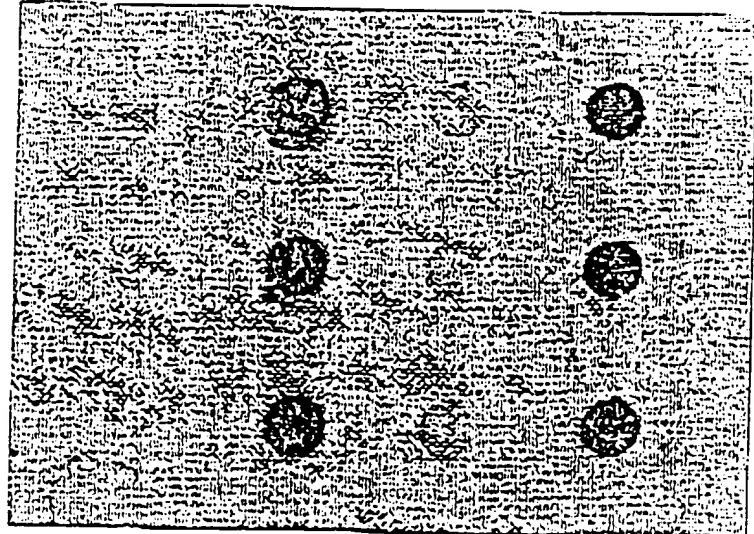
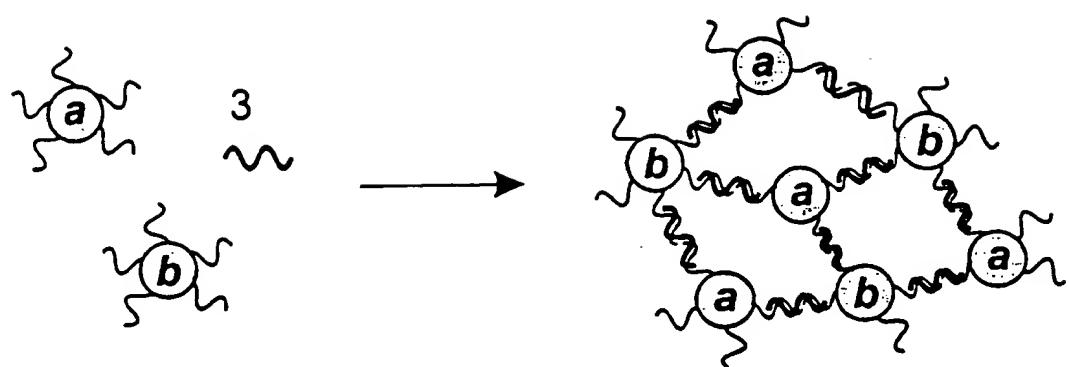


FIG. 36B



C A T G

A



B

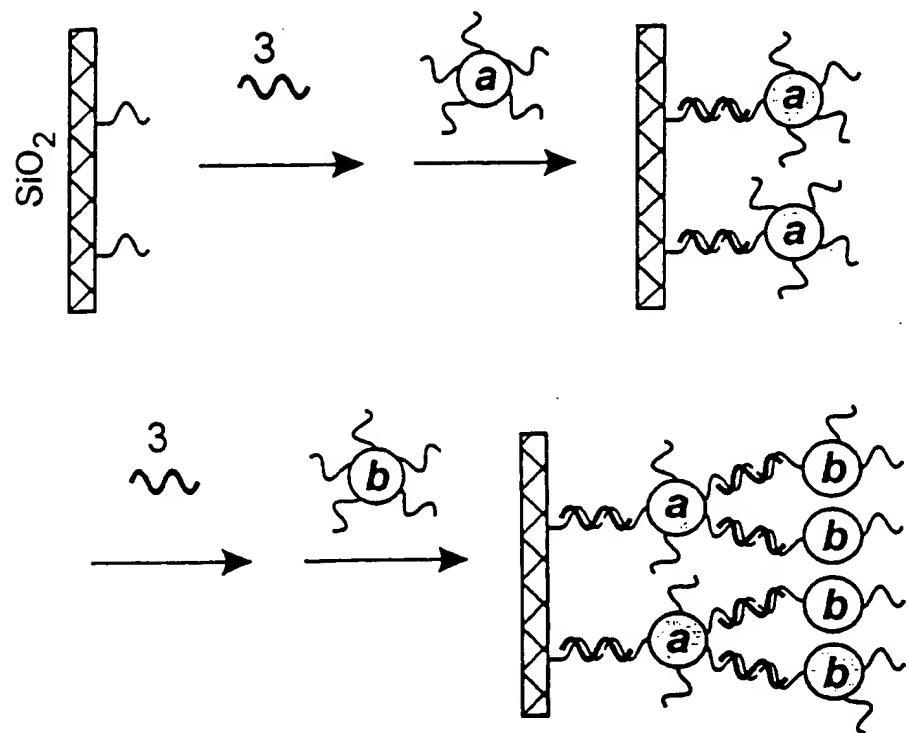


Figure 37

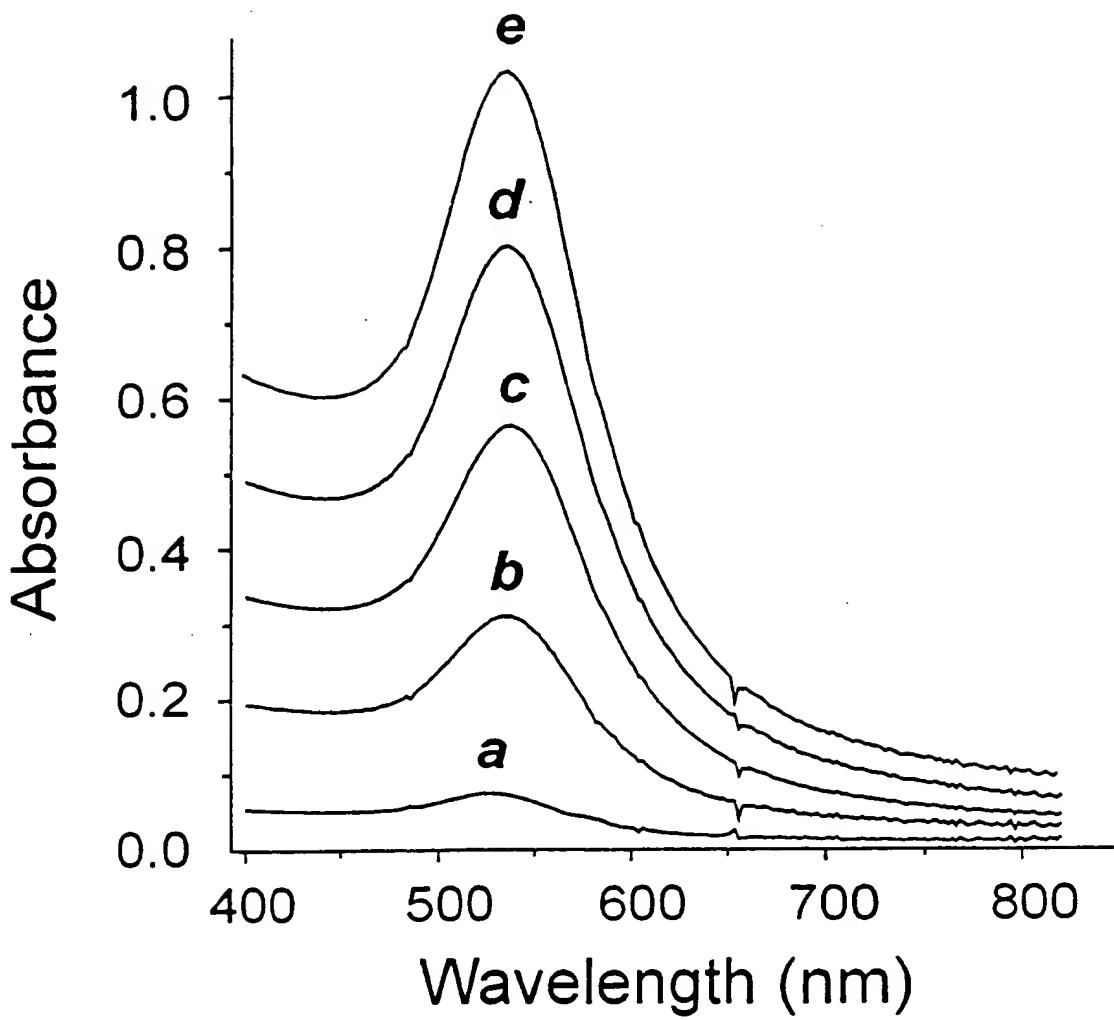


Figure 38A

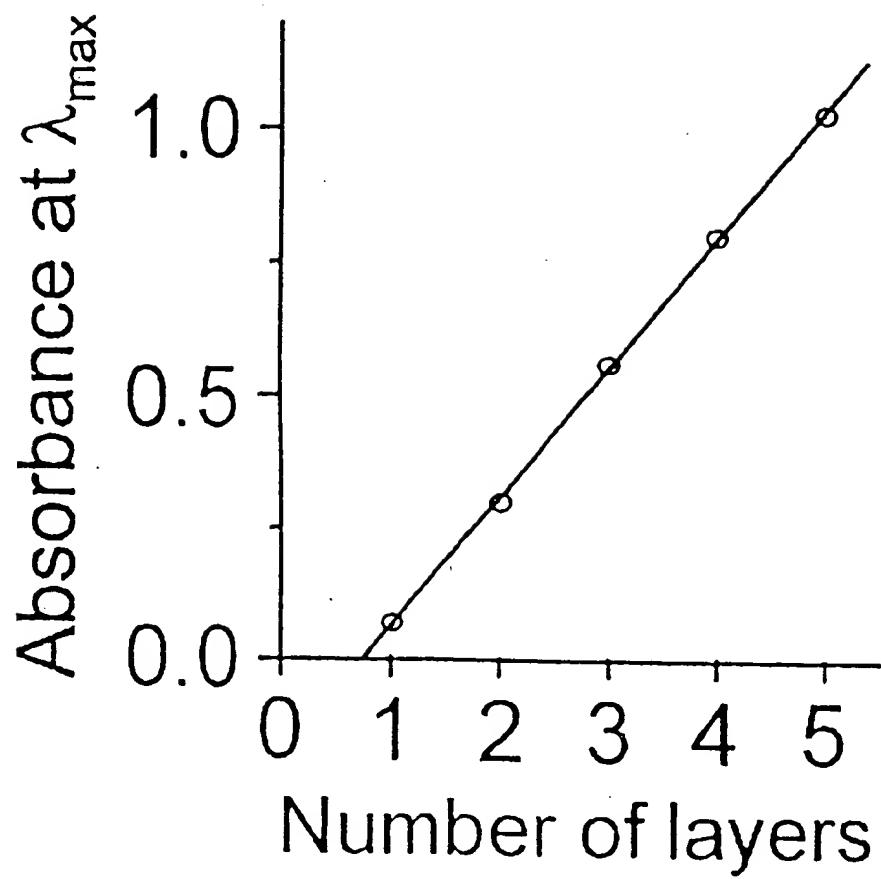


Figure 38B

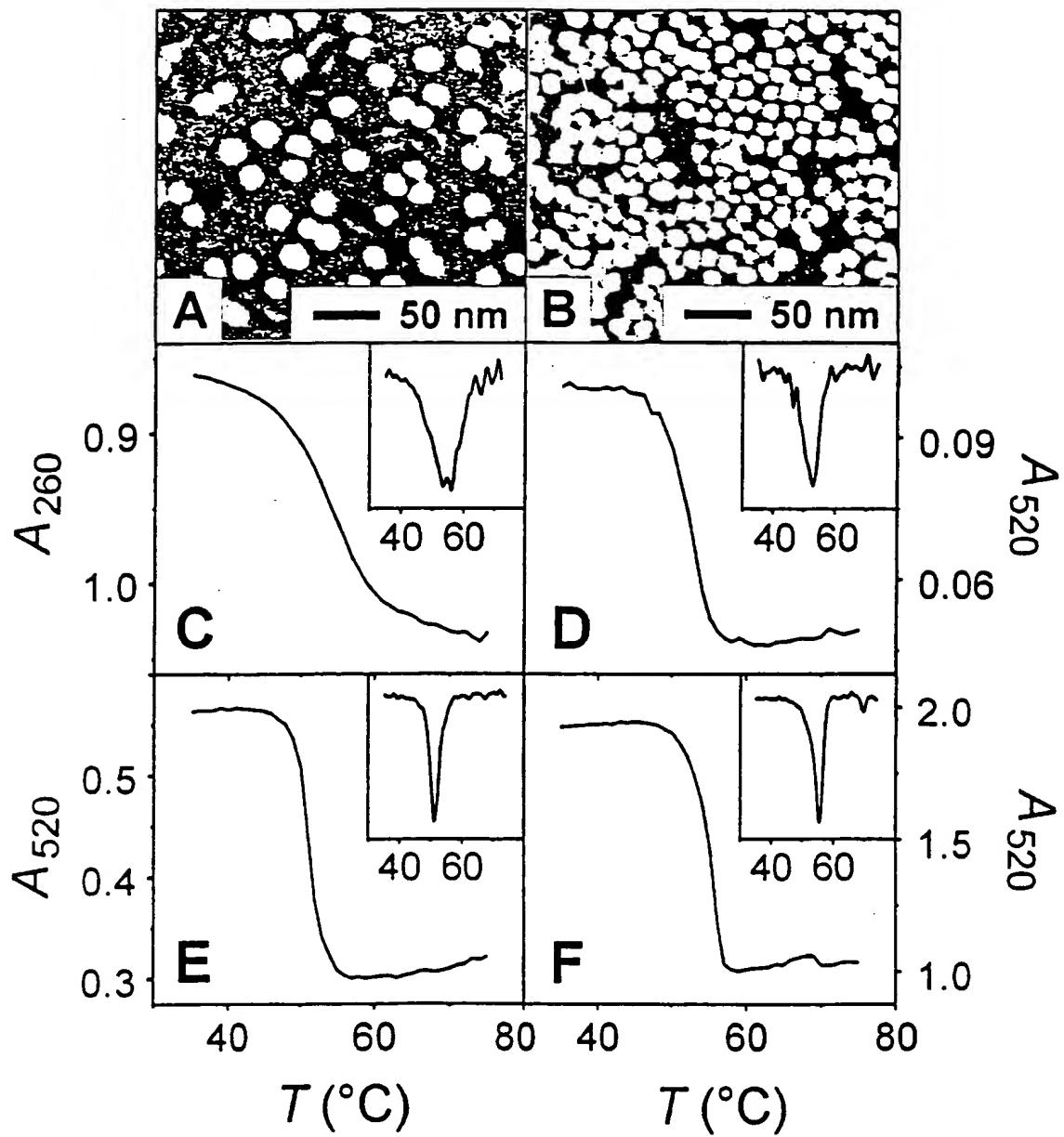


Figure 39

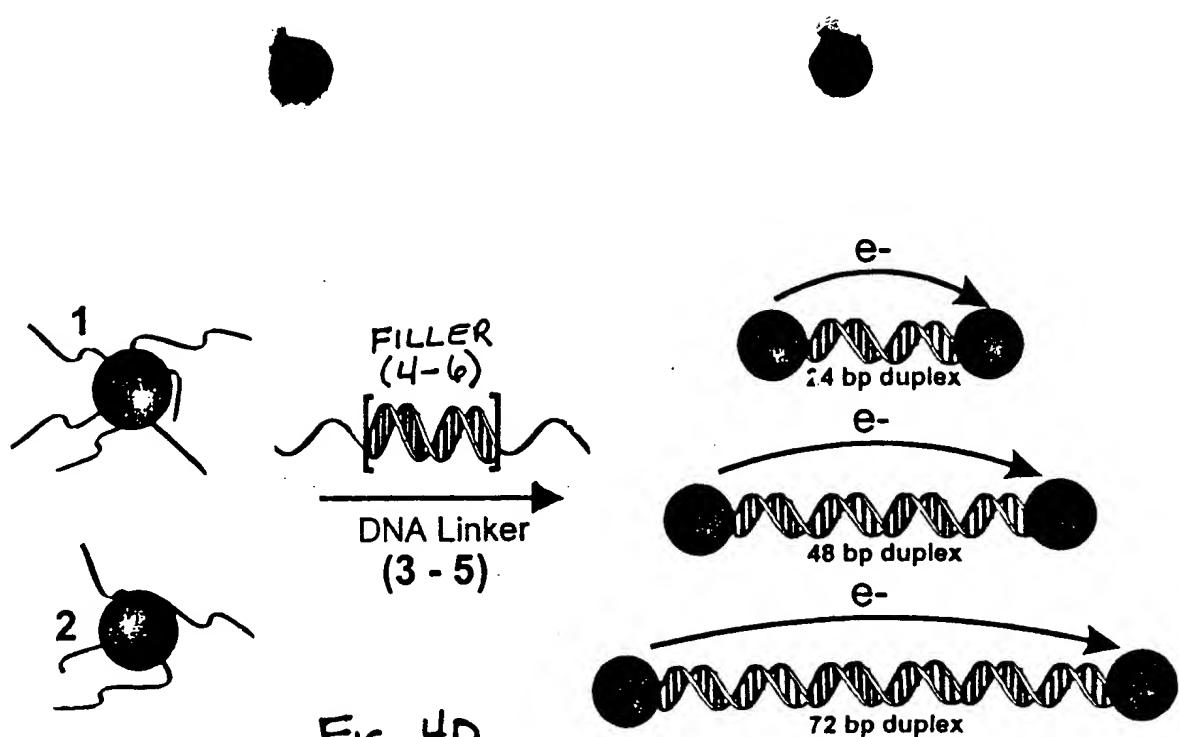


FIG. 40

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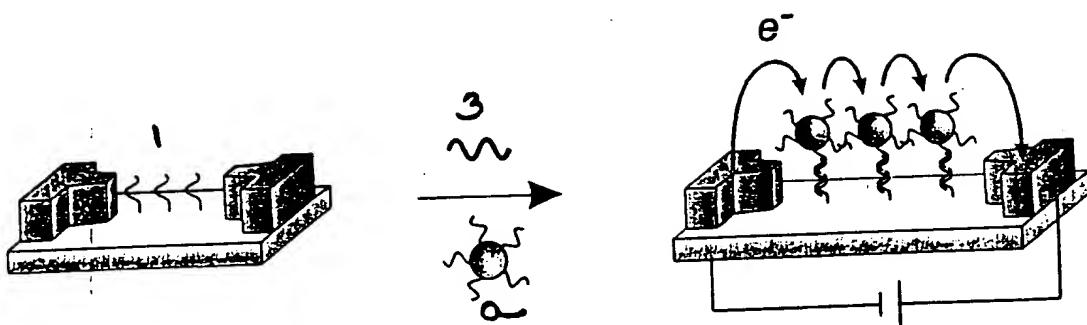


FIG. 41